UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ENVIRONMENTAL MONITORING AND ASSESSMENT PROGRAM VIRGINIAN PROVENCE-SPECIAL CHESAPEAKE BAY DATA SUBSET DATA DICTIONARY

USEPA-EMAP Virginian Provence-SpecialChesapeake Bay Data Subset
- Taxonomic Data Dictionary
- Biomass Data Dictionary
- Sediment Data Dictionary
- Water Quality Data Dictionary
- Event and Biota Event Data Dictionary

NOTE THIS DICTIONARY WAS REVISED ON 20 JULY 2012 AND SUPERSEDES ALL
OTHER CBP DICTIONARIES FOR THE USEPA-EMAP Virginian Provence-Special Chesapeake Bay Data Subset

#PURPOSE
 The Environmental Monitoring and Assessment Program (EMAP) was designed to periodically estimate the status and trends of the Nation's ecological resources on a regional basis. EMAP provides a strategy to identify and bound the extent, magnitude and location of environmental degradation and improvement on a regional scale.

NAMES AND DESCRIPTIONS OF ASSOCIATED DATA DICTIONARY FILE
2012 User's Guide to Chesapeake Bay Program Biological Data

#PROJECT TITLE:
United States Environmental Protection Agency Environmental Monitoring and Assessment Program Virginian Provence Survey 1990-1993

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#PROJECT FUNDING AGENCIES:
U.S. Environmental Protection Agency

#PROJECT COST
Not Available

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#LOCATION OF STUDY
Chesapeake Bay and its Tidal Tributaries

#DATE INTERVALS
7/20/1990-9/18/1993

#ABSTRACT
The Environmental Monitoring and Assessment Program (EMAP) is a nationwide program initiated by EPA's Office of Research and Development (ORD). EMAP was developed in response to the demand for information about the degree to which existing pollution control programs and policies protect the nation's ecological resources.

The Estuaries portion of EMAP (EMAP-E) was a joint EPA/National Oceanic and Atmospheric Administration (NOAA) Program designed to eventually monitor the waters, sediment, and biota of the Nation's bays, sounds and estuaries. This program will complement and may eventually merge with NOAA's existing Status and Trends Program for Marine Environmental Quality to produce a single, cooperative, coastal and estuarine monitoring program.

The goals of EMAP-E, as outlined in the 1990 Near Coastal Program Plan (Holland, 1990) are as follows:
- Provide a quantitative assessment of the regional extent of estuarine environmental problems by measuring pollution exposure and ecological condition,
- Measure changes in the regional extent of environmental problems for the Nation'sestuarine ecosystems,
- Identify and evaluate associations between the ecological condition of the Nation's estuarine ecosystems and pollutant exposure, as well as other factors known to affect ecological condition (e.g., climatic conditions, land use patterns), and
- Assess the effectiveness of pollution control actions and environmental policies on a regional scale (i.e., large estuaries like Chesapeake Bay and Long Island Sound) and nationally.

In addition to meeting the overall goals of EMAP, EMAP-E is addressing specific environmental problems such as: low dissolved oxygen (DO) concentrations, eutrophication, chemical and biological contamination, habitat modification, and cumulative impacts.

EMAP-E initiated a four-year demonstration project (1990-1994) in the estuaries of the Virginian Province, which includes the coastal region of the Northeast United States from Cape Cod south to the mouth of Chesapeake Bay. It is composed of 23,574 km2 of estuarine resources including 11,469 km2 in Chesapeake Bay and 3,344 km2 in Long Island Sound. The objectives of the demonstration project were were to:

- Provide, on a pilot basis, an estimate of the extent of degraded estuarine resources in the Virginian Province to demonstrate the usefulness and ease of presentation of the data resulting from an EMAP design.
- Evaluate the specificity, sensitivity, reliability, and repeatability of the responses of the selected indicators over a broad range of environmental conditions.
- Identify and resolve, before the implementation phase (1991), logistical problemsassociated with the program design.
- Develop, evaluate, and refine sampling methods for indicators of environmental quality.
- Develop data handling, quality assurance, and statistical procedures for efficient analysis and reporting of the data.
- Collect the information necessary to evaluate alternative sampling designs and to establish appropriate Data Quality Objectives (DQOs) for the Program.

The EMAP-E program measured a defined set of parameters that are considered to be reliable indicators of estuarine environmental condition. The measured parameters have been categorized as either biotic condition,abiotic condition, or habitat indicators in accordance with the general EMAP indicator

Category	Indicator
Biotic Condition	Benthic species composition and species specific biomass
	Fish community composition
	Contaminant concentrations in fish flesh
	Gross pathology of fish
	Histopathology of fish
Abiotic Condition	Sediment contaminant concentrations
	Sediment toxicity
	Dissolved oxygen concentration
	Marine debris
	Water clarity
Habitat	Salinity
	Temperature
	Depth
	Grain size
	pH

Sampling took place in the EMAP-Estuaries Virginian Province during an index period from 1 July through 30 September. The index period was divided into two intervals. Specific suites of samples were collected at stations during each interval. Stations were sampled more than once during the sampling season. Overall in the Chesapeake Bay estuary 279 sites were sampled in the period between 1990-1993.

In 2002 Chesapeake Bay Program's Living Resources data manger obtained selected emap data for the Chesapeake Bay estuary for inclusion to the programs tidal bentic databse used for going programmatic data analysis. Data subsetted out of the larger EMAP Virginian Provience data set included: Benthic species composition and biomass, Dissolved oxygen concentration, Salinity, Temperature, Depth, sediment grain size and pH. Other EMAP collected parameter for the Chesapeake Bay region can be obtained at http://oaspub.epa.gov/emap/webdev_emap.search or http://www.epa.gov/emap/html/data/index.html

STATION NAMES AND DESCRIPTIONS

Estuarine resources in the Virginian Province were stratified into classes by physical dimension for the purposes of sampling and analysis. Three sampling strata were established based on system size: large estuaries, large tidal rivers and small tidal rivers and estuarine systems. Stratification permitted customizing the sampling frame to the specific geographic features of these different classes of estuaries. It also allowed allocation of a strata-specific number of samples so that class estimates could be derived with a desired level of precision. The boundaries of these strata were defined using National Oceanic and Atmospheric Administration nautical charts, resulting in 12 large estuaries, five large tidal rivers and 144 small estuarine systems. Sampling was spread out over four years, with approximately 1/4 of the stations sampled each year.

A summary of the characteristics of the estuarine STRATA in the Virginian Province follows:
•   LARGE: Surface area: > 100 mi2 or > 260 km2; Aspect Ratio (Length/Avg Width): < 20; Per Cent of Area: 70; The areal extent of large estuaries in the Province is 16,097 km2.

•   LARGE TIDAL RIVER: Surface area: > 100 mi2 or > 260 km2; Aspect Ratio (Length/Avg Width): > 20; Per Cent of Area: 13; Approximately 2,602 km2 were classified as large tidal rivers.

•   SMALL: Surface area: 2.6 - 260 km2; Aspect Ratio (Length/Avg Width): Any; Per Cent of Area: 17. This class represents 4,875 km2 of the Virginian Province.

Methods for selecting sampling sites within each system follow.

LARGE ESTUARY BASE SAMPLING SITES (LAR)- were selected using an enhancement of the systematic sampling grid proposed for use throughout EMAP (Overton, 1989). This grid was placed randomly over a map of the Unites States and intensified to make 70 km2 hexagonal grids. In 1990, fifty-four base sampling sites were selected using this grid. The remaining stations were sampled in 1991, 1992, or 1993. The sampling sites were the center points of the hexagons, which were 18 km apart. BASE

SAMPLING SITES IN LARGE TIDAL RIVERS (LTR)- were selected using a "spine" and "rib" approach that is a linear analog of the sampling grid for large estuaries. The starting point of the spine was at the mouth of the river and the first transect ("rib") was located at a randomly selected river-kilometer between 0 and 25. Additional upstream transects were placed every 25 km from the first. Each segment was further subdivided into four sections, with one being sampled each year within the four-year cycle. Sampling sites were selected at random along the rib of each subsegment.

SMALL ESTUARINE SYSTEMS (SER)- A list frame was used to select for sampling each year. To ensure that all systems were dispersed geographically, all small estuarine systems were listed in order of latitude from north to south and combined into groups of four. Each year one system was selected at random (without replacement) from each group.

STATION NAMES AND POSITIONS

>Final Site Positions. Sampling station list for survey done from 1990-1993. The site type refers to random (R) or Fixed (F). Protocol refers to they type of sampling performed at the side. See METHODOLOGY DESCRIBING FIELD COLLECTION OF SAMPLES below for details. The Longitude, (decimal degrees), Latitude (decimal degrees) in data sets have been converted to NAD84 Coordinates.

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE	STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA90-039	R	BASE	LAR	37.895	-75.778	VA90-044	R	BASE	LAR	37.17	-75.988
VA90-040	R	BASE	LAR	37.747	-75.862	VA90-045	R	BASE	LAR	38.16	-76.026
VA90-041	F	LTDO	LAR	38.028	-75.902	VA90-046	R	BASE	LAR	37.45	-76.028
VA90-042	R	BASE	LAR	37.599	-75.945	VA90-047	R	BASE	LAR	37.731	-76.069

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA90-048	R	BASE	LAR	37.021	-76.07
VA90-050	F	BASE	LAR	38.012	-76.11
VA90-051	R	BASE	LAR	37.302	-76.111
VA90-053	R	BASE	LAR	37.583	-76.153
VA90-054	F	LTDO	LAR	37.153	-76.193
VA90-055	R	BASE	LAR	37.864	-76.194
VA90-056	R	BASE	LAR	38.144	-76.235
VA90-057	F	LTDO	LAR	37.434	-76.235
VA90-058	F	BASE	LAR	39.129	-76.281
VA90-059	R	BASE	LAR	37.005	-76.275
VA90-060	F	BASE	LAR	37.715	-76.277
VA90-061	F	LTDO	LAR	37.286	-76.318
VA90-062	F	LTDO	LAR	38.987	-76.358
VA90-063	R	BASE	LAR	38.277	-76.36
VA90-065	F	LTDO	LAR	38.558	-76.401
VA90-066	R	BASE	LAR	38.838	-76.443
VA90-080	R	BASE	LAR	38.89	-76.401
VA90-081	R	BASE	SER	39.243	-76.492
VA90-082	R	BASE	SER	39.253	-76.552
VA90-083	R	BASE	SER	38.878	-76.515
VA90-084	R	BASE	LTR	37.623	-76.465
VA90-085	R	BASE	LAR	37.067	-76.167
VA90-086	F	ITE	SER	36.832	-76.294
VA90-087	R	BASE	LTR	37	-76.333
VA90-089	R	BASE	SER	39.378	-76
VA90-090	F	ITE	SER	39.27	-76.443
VA90-091	R	BASE	SER	39.443	-76.246
VA90-112	R	BASE	SER	38.878	-76.518
VA90-113	R	BASE	SER	38.854	-76.518
VA90-114	R	BASE	SER	38.745	-76.242
VA90-115	R	BASE	SER	38.743	-76.242
VA90-128	R	BASE	SER	38.458	-77.039
VA90-129	R	BASE	SER	38.417	-77.026
VA90-130	R	BASE	SER	37.998	-75.622
VA90-133	R	BASE	SER	37.963	-75.646
VA90-134	F	LTDO	SER	39.246	-76.557
VA90-135	R	BASE	SER	39.219	-76.543
VA90-136	F	BASE	SER	39.305	-76.41
VA90-137	R	BASE	SER	39.31	-76.409
VA90-139	R	BASE	SER	39.255	-76.444
VA90-140	R	BASE	SER	39.275	-76.45
VA90-141	R	BASE	SER	37.675	-76.911

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA90-142	R	BASE	SER	37.528	-76.786
VA90-143	R	BASE	SER	37.615	-76.847
VA90-164	R	BASE	SER	36.925	-76.345
VA90-165	R	BASE	SER	36.852	-76.357
VA90-180	R	BASE	LTR	38.07	-76.465
VA90-181	R	BASE	LTR	38.051	-76.464
VA90-182	R	BASE	LTR	38.218	-76.786
VA90-183	R	BASE	LTR	38.204	-76.786
VA90-184	F	LTDO	LTR	38.398	-77.084
VA90-185	R	BASE	LTR	38.4	-77.083
VA90-186	R	BASE	LTR	38.5	-77.275
VA90-187	R	BASE	LTR	38.5	-77.285
VA90-188	R	BASE	LTR	38.737	-77.033
VA90-189	R	BASE	LTR	38.75	-77.036
VA90-190	R	BASE	LTR	37.737	-76.584
VA90-191	R	BASE	LTR	37.733	-76.585
VA90-192	F	LTDO	LTR	37.965	-76.867
VA90-193	R	BASE	LTR	37.967	-76.862
VA90-194	R	BASE	LTR	38.11	-77
VA90-196	R	BASE	LTR	38.165	-77.142
VA90-197	R	BASE	LTR	38.167	-77.138
VA90-200	R	BASE	LTR	38.2	-77.252
VA90-202	R	BASE	LTR	36.922	-76.351
VA90-203	R	BASE	LTR	36.935	-76.351
VA90-204	R	BASE	LTR	37.032	-76.572
VA90-205	R	BASE	LTR	37.033	-76.583
VA90-206	R	BASE	LTR	37.209	-76.798
VA90-207	R	BASE	LTR	37.209	-76.792
VA90-208	R	BASE	LTR	37.27	-77.071
VA90-209	R	BASE	LTR	37.268	-77.071
VA90-210	F	LTDO	LTR	37.333	-77.273
VA90-254	F	LTDO	SER	39.48	-75.942
VA90-255	R	BASE	SER	39.428	-76.014
VA91-045	F	BASE	LAR	38.161	-76.026
VA91-050	F	BASE	LAR	38.012	-76.11
VA91-058	F	BASE	LAR	39.129	-76.281
VA91-060	F	BASE	LAR	37.715	-76.277
VA91-090	F	BASE	SER	39.27	-76.443
VA91-136	F	BASE	SER	39.305	-76.41
VA91-188	F	BASE	LTR	38.737	-77.033
VA91-261	R	BASE	LAR	36.94	-76.214
VA91-262	R	BASE	LAR	36.956	-76.008

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA91-263	R	BASE	LTR	36.977	-76.483
VA91-265	R	BASE	LAR	37.089	-76.132
VA91-266	R	BASE	SER	37.098	-76.333
VA91-267	R	BASE	SER	37.111	-76.297
VA91-269	R	BASE	LTR	37.163	-76.629
VA91-270	R	BASE	LAR	37.221	-76.255
VA91-271	R	BASE	LAR	37.237	-76.049
VA91-273	R	BASE	LTR	37.241	-76.955
VA91-275	R	BASE	LTR	37.32	-77.192
VA91-276	R	BASE	LAR	37.37	-76.173
VA91-278	R	BASE	LTR	37.379	-77.316
VA91-279	R	BASE	LAR	37.518	-76.09
VA91-280	R	BASE	SER	37.533	-76.31
VA91-281	R	BASE	SER	37.54	-76.405
VA91-282	R	BASE	LAR	37.651	-76.215
VA91-283	R	BASE	LAR	37.667	-76.007
VA91-284	R	BASE	LAR	37.799	-76.131
VA91-285	R	BASE	LAR	37.815	-75.924
VA91-286	R	BASE	SER	37.82	-76.298
VA91-288	R	BASE	LTR	37.831	-76.747
VA91-290	R	BASE	SER	37.85	-76.361
VA91-291	R	BASE	LAR	37.931	-76.256
VA91-292	R	BASE	LAR	37.947	-76.048
VA91-294	R	BASE	LTR	38.039	-76.917
VA91-295	R	BASE	LAR	38.08	-76.172
VA91-296	R	BASE	LAR	38.096	-75.964
VA91-298	R	BASE	LTR	38.14	-77.054
VA91-300	R	BASE	LTR	38.181	-77.193
VA91-302	R	BASE	LTR	38.207	-76.599
VA91-303	R	BASE	LAR	38.212	-76.297
VA91-304	R	BASE	SER	38.222	-76.73
VA91-306	R	BASE	SER	38.228	-76.697
VA91-307	R	BASE	LAR	38.228	-76.088
VA91-308	R	BASE	SER	38.234	-75.992
VA91-309	R	BASE	LTR	38.235	-77.23
VA91-311	R	BASE	SER	38.249	-76.114
VA91-312	R	BASE	SER	38.256	-76.661
VA91-314	R	BASE	SER	38.281	-76.711
VA91-315	R	BASE	LTR	38.285	-76.928
VA91-316	R	BASE	SER	38.304	-76.184
VA91-317	R	BASE	SER	38.315	-76.02
VA91-319	R	BASE	LTR	38.336	-77.239

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA91-322	R	BASE	SER	38.519	-76.269
VA91-323	R	BASE	SER	38.549	-76.313
VA91-325	R	BASE	LAR	38.625	-76.464
VA91-326	R	BASE	LTR	38.625	-77.162
VA91-330	R	BASE	SER	38.774	-76.185
VA91-331	R	BASE	SER	38.823	-76.218
VA91-332	R	BASE	SER	38.848	-76.203
VA91-336	R	BASE	SER	38.906	-76.171
VA91-339	R	ITE	LAR	39.054	-76.421
VA91-343	R	BASE	LAR	39.203	-76.336
VA91-346	R	ITE	SER	39.37	-75.925
VA91-347	R	BASE	SER	39.38	-76.062
VA91-351	R	BASE	SER	39.578	-76.091
VA91-353	R	BASE	SER	39.588	-76.109
VA91-426	F	BASE	LAR	37.713	-76.275
VA91-427	F	BASE	LAR	37.709	-76.272
VA91-428	F	BASE	LAR	37.703	-76.267
VA91-429	F	BASE	LAR	38.006	-76.119
VA91-430	F	BASE	LAR	38.009	-76.115
VA91-431	F	BASE	LAR	38	-76.126
VA91-432	F	BASE	LAR	38.148	-76.012
VA91-433	F	BASE	LAR	38.151	-76.015
VA91-434	F	BASE	LAR	38.142	-76.007
VA91-435	F	BASE	LAR	39.124	-76.288
VA91-436	F	BASE	LAR	39.127	-76.284
VA91-437	F	BASE	LAR	39.12	-76.294
VA92-045	F	BASE	LAR	38.161	-76.026
VA92-050	F	BASE	LAR	38.012	-76.11
VA92-058	F	BASE	LAR	39.129	-76.281
VA92-060	F	BASE	LAR	37.715	-76.277
VA92-136	F	BASE	SER	39.305	-76.41
VA92-188	F	BASE	LTR	38.737	-77.033
VA92-451	R	BASE	SER	36.864	-76.519
VA92-452	R	BASE	SER	36.881	-76.012
VA92-453	R	BASE	LTR	36.927	-76.417
VA92-454	R	BASE	LAR	37.015	-76.173
VA92-455	R	BASE	LAR	37.031	-75.967
VA92-456	R	BASE	LTR	37.057	-76.62
VA92-457	R	BASE	LTR	37.087	-76.599
VA92-460	R	BASE	LAR	37.163	-76.091
VA92-461	R	BASE	LTR	37.226	-76.895
VA92-462	R	BASE	LAR	37.295	-76.214

07/30/12

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA92-464	R	BASE	LTR	37.312	-77.106
VA92-465	R	BASE	SER	37.329	-76.381
VA92-466	R	BASE	SER	37.331	-76.394
VA92-467	R	BASE	SER	37.318	-77.284
VA92-468	R	BASE	SER	37.345	-76.874
VA92-469	R	BASE	LTR	37.356	-77.271
VA92-470	R	BASE	LAR	37.444	-76.132
VA92-471	R	BASE	SER	37.561	-76.905
VA92-472	R	BASE	LAR	37.576	-76.256
VA92-473	R	BASE	LAR	37.592	-76.049
VA92-474	R	BASE	LAR	37.725	-76.173
VA92-475	R	BASE	LAR	37.741	-75.966
VA92-476	R	BASE	LTR	37.807	-76.682
VA92-477	R	BASE	LTR	37.811	-76.694
VA92-478	R	BASE	LAR	37.873	-76.09
VA92-481	R	BASE	LTR	37.984	-76.906
VA92-482	R	BASE	LAR	38.006	-76.214
VA92-483	R	BASE	SER	38.064	-75.793
VA92-484	R	BASE	LTR	38.095	-77.035
VA92-485	R	BASE	LTR	38.124	-76.498
VA92-486	R	BASE	SER	38.134	-76.483
VA92-487	R	BASE	LAR	38.154	-76.13
VA92-488	R	BASE	SER	38.215	-75.851
VA92-489	R	BASE	LTR	38.213	-76.92
VA92-490	R	BASE	LTR	38.245	-76.811
VA92-491	R	BASE	LAR	38.286	-76.255
VA92-492	R	BASE	SER	38.346	-76.854
VA92-493	R	BASE	LTR	38.354	-77.193
VA92-494	R	BASE	SER	38.396	-77.325
VA92-497	R	BASE	LAR	38.419	-76.381
VA92-499	R	BASE	LTR	38.618	-77.212
VA92-500	R	BASE	LAR	38.699	-76.422
VA92-501	R	BASE	SER	38.742	-76.31
VA92-502	R	BASE	LTR	38.778	-77.036
VA92-504	R	BASE	SER	38.922	-76.492
VA92-506	R	BASE	SER	38.98	-76.476
VA92-507	R	BASE	SER	39.066	-76.44
VA92-511	R	BASE	LAR	39.128	-76.379
VA92-514	R	BASE	LAR	39.277	-76.293
VA92-519	R	BASE	SER	39.428	-76.24
VA92-521	R	BASE	SER	39.479	-75.897
VA93-045	F	BASE	LAR	38.161	-76.026

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA93-050	F	BASE	LAR	38.012	-76.11
VA93-058	F	BASE	LAR	39.129	-76.281
VA93-060	F	BASE	LAR	37.715	-76.277
VA93-136	F	BASE	SER	39.305	-76.41
VA93-188	F	BASE	LTR	38.737	-77.033
VA93-601	R	BASE	LAR	36.948	-76.111
VA93-602	R	BASE	LTR	37.007	-76.533
VA93-604	R	BASE	LAR	37.097	-76.029
VA93-606	R	BASE	LTR	37.201	-76.689
VA93-607	R	BASE	LAR	37.213	-76.358
VA93-608	R	BASE	LAR	37.229	-76.152
VA93-609	R	BASE	LTR	37.302	-77
VA93-610	R	BASE	LTR	37.307	-77.25
VA93-611	R	BASE	SER	37.343	-76.624
VA93-612	R	BASE	LAR	37.378	-76.07
VA93-613	R	BASE	LTR	37.404	-77.394
VA93-615	R	BASE	LAR	37.51	-76.194
VA93-616	R	BASE	LAR	37.526	-75.987
VA93-617	R	BASE	LAR	37.642	-76.318
VA93-618	R	BASE	LAR	37.659	-76.111
VA93-619	R	BASE	LAR	37.675	-75.904
VA93-620	R	BASE	SER	37.708	-76.482
VA93-621	R	BASE	LTR	37.943	-76.846
VA93-622	R	BASE	LAR	37.791	-76.235
VA93-623	R	BASE	LAR	37.807	-76.028
VA93-624	R	BASE	LAR	37.823	-75.82
VA93-626	R	BASE	LAR	37.939	-76.152
VA93-627	R	BASE	LAR	37.955	-75.944
VA93-628	R	BASE	LTR	38.087	-76.982
VA93-630	R	BASE	LAR	38.072	-76.277
VA93-631	R	BASE	LAR	38.088	-76.068
VA93-632	R	BASE	LTR	38.162	-77.088
VA93-633	R	BASE	SER	38.129	-75.89
VA93-635	R	BASE	LTR	38.2	-77.223
VA93-637	R	BASE	LTR	38.22	-76.701
VA93-638	R	BASE	LAR	38.22	-76.193
VA93-639	R	BASE	LTR	38.249	-77.264
VA93-640	R	BASE	SER	38.25	-75.842
VA93-642	R	BASE	SER	38.328	-75.895
VA93-643	R	BASE	LTR	38.344	-76.981
VA93-644	R	BASE	LAR	38.353	-76.318
VA93-645	R	BASE	LTR	38.419	-77.273

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA93-647	R	BASE	LAR	38.485	-76.444
VA93-648	R	BASE	SER	38.486	-76.659
VA93-649	R	BASE	SER	38.597	-76.065
VA93-650	R	BASE	LAR	38.633	-76.359
VA93-651	R	BASE	LTR	38.685	-77.104
VA93-652	R	BASE	SER	38.715	-76.114
VA93-653	R	BASE	LAR	38.765	-76.485
VA93-657	R	BASE	LAR	38.914	-76.401
VA93-658	R	BASE	SER	38.92	-76.28

STATION	SITETYPE	PROTOCOL	STRATUM	LATITUDE	LONGITUDE
VA93-661	R	BASE	SER	39.025	-76.188
VA93-667	R	BASE	LAR	39.359	-76.144
VA93-670	R	BASE	SER	39.48	-76.07
VA93-672	R	BASE	SER	39.567	-75.959
VA93-728	R	BASE	LTR	37.289	-76.992
VA93-729	R	BASE	SER	37.525	-76.788
VA93-730	R	BASE	SER	37.683	-76.464
VA93-731	R	BASE	LTR	38.081	-76.956

METHODOLOGY DESCRIBING FIELD COLLECTION OF SAMPLES

BASE SITES: (264 sites in Chesapeake Bay Region) The probability-based Base Sampling Sites were used to characterize the water quality of the province. These stations were visited for the purpose of collecting monitoring samples. These samples included: a CTD cast, collection of three samples for benthic biology and grain size, collection of sediment for chemical analyses, grain size characterization and toxicity testing, performance of a fish trawl for determination of species composition and abundance and for collection of samples observed as having one or more gross external pathologies. Note that 32 of these site became fixed monitoring sites.

LTDO SITES: (11 sites in the Chesapeake Bay Region) Some of the BASE Sampling Sites were selected to become fixed Long-Term Dissolved Oxygen (LTDO) Sites. Sites were selected from all strata and represented a range of estuarine habitats as defined by salinity, sediment type and depth. Hydrolab DataSonde III data loggers were deployed at these sites for up to 60 days. Sites were visited every ten (10) days to retrieve a Hydrolab and deploy a new one. An additional fish trawl was also conducted.

ITE SITES: (4 Sites in the Chesapeake Bay Region) Selected BASE Sampling Sites were also chosen as Indicator Testing and Evaluation (ITE) Sites. These sites were chosen for specific combinations of geographic location, salinity, concentrations of sediment contaminants and dissolved oxygen concentrations. These sites were sampled to investigate the reliability of indicator responses for discriminating between degraded and non-degraded sites across the range of habitats that occurs throughout a Province. An additional fish trawl was also conducted and a water sample was collected for total suspended solids analysis (one per station).

Sampling was conducted from 8 m (24 ft), twin-engine Chesapeake style work boats. The first activity performed at a station was a CTD cast. The CTD was attached to the end of a winch cable with a shackle. The instrument was swung over the side of the boat, turned on and lowered to just below the water surface. The instrument was allowed to reach thermal equilibrium (about two minutes). The instrument was then lowered through the water column at a rate of approximately 1.0 meter per second until it reached the bottom. The boat's depth finder was used to prevent the CTD from impacting the bottom by stopping its descent when it was approximately one meter or less from the bottom. The unit was allowed to equilibrate and to collect bottom data for two minutes. The unit was then raised to the surface, turned off and brought back on the boat. If the water depth was too shallow (<3 meters to obtain a profile, the unit was suspended 1 meter above the bottom and allowed to collect data for two minutes following the equilibrium period. After being brought back on the boat, the CTD was then connected to the on-board GRiD 386 computer and the data were uploaded using the Sea-Bird software. The data were viewed on the screen of the computer. If the cast was acceptable, appropriate entries were made on a data sheet. Up to three attempts were made to collect an acceptable CTD cast. The suspended solids sample was collected at the same time as the CTD cast. After the CTD instrument reached equilibrium, a surface water sample was collected with a Go-Flo

bottle or a bucket. The surface water sample in the Go-Flo bottle was shaken to ensure a homogeneous distribution of sediments. A 625 ml plastic container was filled with water from the Go-Flo bottle. The sample was placed on ice.

A 1/25 m2, stainless steel, Young-modified Van Veen Grab sampler was used to collect sediment grabs for benthic analyses. This grab sampled a sample area of 440 cm2 and maximum depth of penetration in the sediment of between 7 and 10 cm. The grab sampler was lowered through the water column such that travel through the last 5 meters was no faster than 1 m/sec. The grab penetrated the sediment by gravity releasing a trigger allowing the jaws to close. When the grab was pulled from the sediment using the winch, the jaws closed, encapsulating the sediment sample. After the sampler was retrieved, it was lowered into an on-board cradle.

A clear plastic core was inserted into a random location in the grab. The sediment within the core was extruded into a "Whirl Pack" for benthic grain size analysis. The sample was processed for benthic community analysis. Each grab was placed separately into a frame holding a 500 um sieve. The sieve was placed into a sieve box containing water from the sampling station. The sieve was agitated to wash away sediments and leave organisms, detritus, sand particles and pebbles larger than 500 um. This method was used to minimize mechanical damage to fauna. A gentle flow of water over the sample was also acceptable. The contents on the sieve were gently rinsed, using a funnel, into a bottle or bottles. The sieve was inspected for remaining organisms. These were removed by forceps and placed in the bottle. Benthic infauna (final concentration of approximately 10% formalin). The samples were again mixed by inversion and placed in the dark. After processing each grab, the sieve was vigorously cleaned with water and a brush to prevent cross-contamination of samples.

METHODOLOGY DESCRIBING CHAIN OF CUSTODY FOR BIOLOGICAL LAB SAMPLES

 Please see the following document for details:
Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993 Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

http://www.epa.gov/emap/html/pubs/docs/groupdocs/estuary/qaqc/93qaplan.pdf

BIOLOGICAL ENUMERATION TECHNIQUES

BENTHIC SAMPLES: The samples were washed through 500 um mesh sieves. Benthic fauna were sorted from the sediments, identified to species, if possible, and enumerated. Benthic fauna identified included those commonly termed 'macrofauna', i.e., those metazoan organisms retained by a 0.5 mm mesh sieve. 'Meiofaunal' groups were not identified or enumerated. These groups included: nematodes, ostracods, turbellarians, harpacticoid copepods and foraminifera. In addition to meiofauna, taxonomic groups having only planktonic forms were excluded from the identification process. Examples of these groups were copepods andcladocerans. Benthic fauna were identified to the lowest practical taxonomic level. Macrobenthos were identified to species, except for the following groups: class anthozoa (class), subclass copepoda (order), phylum nemertinea (phylum), subclass ostracoda (subclass) and class turbellaria (class). For samples collected in low salinity (less than 5 ppt) water, oligochaetes and chironomids were identified to species, where possible. Above 5 ppt salinity, individuals of these groups from higher salinities were not further differentiated.

BIOMASS: Identified and counted organisms were grouped by categories of taxonomic and ecologically significance to be used in biomass determinations, placed in vials and preserved. Biomass was determined using formaldehyde dry weight. Soft-bodied organisms and those having significant inorganic body parts were treated separately. The dry weight biomass of soft-bodied organisms was directly measured after drying. However, hard-bodied organisms (e.g., bivalves, gastropods, and echinoderms) were acidified prior to measuring dry weight in order to remove calcium carbonate (bivalves >2 cm in length were shucked rather than acidified). Biomass measurements were made using an analytical balance with an accuracy of 0.1 mg. Biomass was determined as shell-free dry weight after drying to a constant weight at 60 degrees C.

In the data base, biomass data are reported along with an abundance value (the number of organisms included in the sample). Data base records with a biomass value greater than zero but with an abundance equal to zero indicate that organism fragments were included in the sample.

#FORMULAS AND CALCULATIONS FOR BIOLOGICAL DATA
BIOLOGICAL VARIABLES QA/QC PLAN FOR PROJECT

All EMAP-VP data used in the generation of this report were subjected to rigorous quality assurance measures as described in the following Quality Assurance Project Plan:

> Valente, R. and C.J. Strobel. 1993. Environmental Monitoring and Assessment Program-Estuaries. 1993 Virginian Province Quality Assurance Project Plan. U.S Environmental Protection Agency. NHEERL-AED. Narragansett, RI. May 1993.
> http://www.epa.gov/emap/html/pubs/docs/groupdocs/estuary/qaqc/93qaplan.pdf

#BIOLOGOCAL VARIABLE NAMES, MEASUREMENT UNITS AND DESCRIPTIONS

>PARAMETER: AFDW (taxon ash free dry weight in grams)
-COLLECTION METHODS: Young-modified Van Veen Grab sampler was used to collect sediment grabs for benthic analyses followed by field sieving through a 0.5mm sieve and preserved in the field. Organisms and detritus retained in sieve were transferred into labeled jars and preserved in 10% buffeted formalin with rose bengal.
-SAMPLE PRESERVATIVES: 10% buffeted formalin with rose bengal
-SAMPLE STORAGE ENVIRONMENT: Plastic (Nalgene) Bottles
-TIME IN STORAGE: Variable Until commencement of processing
-LABORATORY TECHNIQUES WITH REFERENCES:
Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993 Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

>DATA ENTRY METHOD: See following document for details:
Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993 Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

>DATA VERIFICATION: See following document for details:
Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993 Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

>PARAMETER: COUNT (# of a benthic taxon per sample)
-COLLECTION METHODS: Young-modified Van Veen Grab sampler was used to collect sediment grabs for benthic analyses followed by field sieving through a 0.5mm sieve and preserved in the field. Organisms and detritus retained in sieve were transferred into labeled jars and preserved in 10% buffeted formalin with rose bengal.
-SAMPLE PRESERVATIVES: 10% buffered formalin with Rose Bengal transferred to 70% ethanol after sorting.
-SAMPLE STORAGE ENVIRONMENT: Plastic (Nalgene) Bottles
-TIME IN STORAGE: Until commencement of processing
-LAB TECHNIQUES WITH REFERENCES: See following document for details:
Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993 Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

>DATA ENTRY METHOD: See following document for details:
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>DATA VERIFICATION:
See following document for details:

Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993
Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

SPECIES INHOUSE CODES AND SCIENTIFIC NAMES
Note inhouse species codes found in this data set are are a combination of original EMAP species codes
and IT IS TSN numbers.

> IN HOUSE SPECIES LIST
The in-house species codes and Latin Names found in this data set are as follows:

SPEC_CODE	LATIN_NAME	LIFE_STAGE	SPEC_CODE	LATIN_NAME	LIFE_STAGE
ABLABESM	ABLABESMYIA	ADULT	67900	AMPHITRITE	ADULT
ABLAANNU	ABLABESMYIA ANNULATA	ADULT	67902	AMPHITRITE ORNATA	ADULT
ABLARHAM	ABLABESMYIA RHAMPHE	ADULT	93423	AMPITHOE LONGIMANA	ADULT
93982	ACANTHOHAUSTORIUS MILLSI	ADULT	AMPILONG	AMPITHOE LONGIMANA	ADULT
93985	ACANTHOHAUSTORIUS SIMILIS	ADULT	ANACHIS	ANACHIS	ADULT
66764	ACMIRA CATHERINAE	ADULT	73616	ANACHIS	ADULT
76140	ACTEOCINA BIDENTATA	ADULT	73631	ANACHIS LAFRESNAYI	ADULT
76117	ACTEOCINA CANALICULATA	ADULT	ANACOBES	ANACHIS OBESA	ADULT
ACTECANA	ACTEOCINA CANALICULATA	ADULT	73622	ANACHIS OBESA	ADULT
66052	AGLAOPHAMUS VERRILLI	ADULT	79342	ANADARA OVALIS	ADULT
155475	ALCYONIDIUM	ADULT	ANADTRAN	ANADARA TRANSVERSA	ADULT
ALIGELEV	ALIGENA ELEVATA	ADULT	79340	ANADARA TRANSVERSA	ADULT
80685	ALIGENA ELEVATA	ADULT	65543	ANCISTROSYLLIS HARTMANAE	ADULT
ALMYPROX	ALMYRACUMA PROXIMOCULI	ADULT	65544	ANCISTROSYLLIS JONESI	ADULT
96602	ALPHEUS HETEROCHAELIS	ADULT	ANCYLIDA	ANCYLIDAE	ADULT
67469	AMASTIGOS	ADULT	ANGUPALM	ANGUINELLA PALMATA	ADULT
AMEROCUL	AMEROCULODES	SPECIES COMPLEX	64357	ANNELIDA	ADULT
70748	AMNICOLA LIMOSA	ADULT	79930	ANODONTA	ADULT
93321	AMPELISCA	ADULT	79796	ANOMIA	ADULT
93321	AMPELISCA	ABDITA-VADORUM COMPLEX	79798	ANOMIA SIMPLEX	ADULT
AMPEABDI	AMPELISCA ABDITA	ADULT	51938	ANTHOZOA	ADULT
93329	AMPELISCA ABDITA	ADULT	ANTHOZOA	ANTHOZOA	ADULT
AMPEVADO	AMPELISCA VADORUM	ADULT	92197	APANTHURETTA MAGNIFICA	ADULT
93330	AMPELISCA VADORUM	ADULT	66440	ARABELLA	ADULT
93331	AMPELISCA VERRILLI	ADULT	66422	ARABELLIDAE	ADULT
AMPEVERR	AMPELISCA VERRILLI	ADULT	68976	ARCTEONAIS LOMONDI	ADULT
67718	AMPHARETIDAE	ADULT	66673	ARICIDEA WASSI	ADULT
AMPHARTD	AMPHARETIDAE	ADULT	82696	ARTHROPODA	ADULT
67753	AMPHICTEIS FLORIDUS	ADULT	67786	ASABELLIDES OCULATA	ADULT
93294	AMPHIPODA	ADULT	158854	ASCIDIACEA	ADULT
			ASCIDIAC	ASCIDIACEA	ADULT
			ASTYLUNA	ASTYRIS LUNATA	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
567255	ASTYRIS LUNATA	ADULT
67519	ASYCHIS ELONGATA	ADULT
68682	AULODRILUS LIMNOBIUS	ADULT
AULOLIMN	AULODRILUS LIMNOBIUS	ADULT
68686	AULODRILUS PAUCICHAETA	ADULT
68680	AULODRILUS PIGUETI	ADULT
AULOPIGU	AULODRILUS PIGUETI	ADULT
68684	AULODRILUS PLURISETA	ADULT
65588	AUTOLYTUS	ADULT
96678	AUTOMATE	ADULT
129236	AXARUS	ADULT
89600	BALANUS	ADULT
BALANUS	BALANUS	ADULT
89622	BALANUS IMPROVISUS	ADULT
BALAIMPR	BALANUS IMPROVISUS	ADULT
81798	BARNEA TRUNCATA	ADULT
BARNTRUN	BARNEA TRUNCATA	ADULT
BATECATH	BATEA CATHARINENSIS	ADULT
93528	BATEA CATHARINENSIS	ADULT
193514	BATHYPOREIA PARKERI	ADULT
127778	BEZZIA	ADULT
65159	BHAWANIA HETEROSETA	ADULT
70794	BITHYNIA TENTACULATA	ADULT
BITTALTE	BITTIUM ALTERNATUM	ADULT
79118	BIVALVIA	ADULT
BIVALVIA	BIVALVIA	ADULT
79118	BIVALVIA	SUSPENDED FEEDER
BOCLHAMA	BOCCARDIELLA HAMATA	ADULT
67011	BOCCARDIELLA HAMATA	ADULT
BOCCLIGE	BOCCARDIELLA LIGERICA	ADULT
67012	BOCCARDIELLA LIGERICA	ADULT
91045	BODOTRIA	ADULT
75987	BOONEA BISUTURALIS	ADULT
BOONIMPR	BOONEA IMPRESSA	ADULT
75989	BOONEA IMPRESSA	ADULT
BOONSEMI	BOONEA SEMINUDA	ADULT
75991	BOONEA SEMINUDA	ADULT
101468	BRACHYCERCUS	ADULT
BRANCARI	BRANCHIOSTOMA CARIBAEUM	ADULT
159682	BRANCHIOSTOMA CARIBAEUM	ADULT
68621	BRANCHIURA SOWERBYI	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
65759	BRANIA	ADULT
BRANCLAV	BRANIA CLAVATA	ADULT
65761	BRANIA CLAVATA	ADULT
BRANWELL	BRANIA WELLFLEETENSIS	ADULT
65762	BRANIA WELLFLEETENSIS	ADULT
69023	BRATISLAVIA UNIDENTATA	ADULT
BRATUNID	BRATISLAVIA UNIDENTATA	ADULT
65565	CABIRA INCERTA	ADULT
71379	CAECUM	ADULT
71379	CAECUM	SP.A
CAECREGU	CAECUM REGULARE	ADULT
101478	CAENIS	ADULT
85258	CALANOIDA	ADULT
97760	CALLIANASSA SETIMANUS	ADULT
CALLSAPI	CALLINECTES SAPIDUS	ADULT
155915	CALLOPORA CRATICULA	ADULT
67414	CAPITELLA	ADULT
CAPICAPI	CAPITELLA CAPITATA	ADULT
CAPITELD	CAPITELLIDAE	ADULT
67413	CAPITELLIDAE	ADULT
95392	CAPRELLA	ADULT
95423	CAPRELLA ANDREAE	ADULT
95419	CAPRELLA PENANTIS	ADULT
CAPRPENA	CAPRELLA PENANTIS	ADULT
95375	CAPRELLIDAE	ADULT
67003	CARAZZIELLA HOBSONAE	ADULT
CARAHOBS	CARAZZIELLA HOBSONAE	ADULT
92348	CASSIDINIDEA OVALIS	ADULT
CASSOVAL	CASSIDINIDEA OVALIS	ADULT
67126	CAULLERIELLA	ADULT
CERATUBU	CERAPUS TUBULARIS	ADULT
93587	CERAPUS TUBULARIS	ADULT
CERATFAM	CERATOPOGONIDAE	ADULT
127076	CERATOPOGONIDAE	ADULT
51991	CERIANTHEOPSIS AMERICANA	ADULT
67097	CHAETOPTERUS VARIOPEDATUS	ADULT
CHAOBORU	CHAOBORUS	ADULT
CHAOALBA	CHAOBORUS ALBATUS	ADULT
125923	CHAOBORUS PUNCTIPENNIS	ADULT
92638	CHIRIDOTEA ALMYRA	ADULT
CHIRALMY	CHIRIDOTEA ALMYRA	ADULT

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SPEC_CODE	LATIN_NAME	LIFE_STAGE
CHRNMDAE	CHIRONOMIDAE	PUPAE
127917	CHIRONOMIDAE	ADULT
CHIRONOM	CHIRONOMUS	ADULT
129254	CHIRONOMUS	ADULT
67116	CIRRATULIDAE	ADULT
CIRRATUL	CIRRATULIDAE	ADULT
67121	CIRRATULUS GRANDIS	ADULT
66708	CIRROPHORUS	SP.A
66708	CIRROPHORUS	SP.B
83832	CLADOCERA	ADULT
CLADOPLE	CLADOPELMA	ADULT
129350	CLADOPELMA	ADULT
CLADOTAN	CLADOTANYTARSUS	ADULT
129873	CLADOTANYTARSUS	ADULT
CLADMANC	CLADOTANYTARSUS MANCUS	ADULT
CLIMACIA	CLIMACIA	ADULT
67528	CLYMENELLA TORQUATA	ADULT
CLYMTORQ	CLYMENELLA TORQUATA	ADULT
COELOTAN	COELOTANYPUS	ADULT
128010	COELOTANYPUS	ADULT
COENAGRI	COENAGRIONIDAE	ADULT
99237	COLLEMBOLA	ADULT
73708	COLUMBELLA	ADULT
73532	COLUMBELLIDAE	ADULT
81387	CORBICULA FLUMINEA	ADULT
CORBFLUM	CORBICULA FLUMINEA	ADULT
CORDULII	CORDULIIDAE	ADULT
93589	COROPHIUM	ADULT
COROACHE	COROPHIUM ACHERUSICUM	ADULT
93594	COROPHIUM LACUSTRE	ADULT
COROLACU	COROPHIUM LACUSTRE	ADULT
93595	COROPHIUM SIMILE	ADULT
93596	COROPHIUM TUBERCULATUM	ADULT
CRANSEPT	CRANGON SEPTEMSPINOSA	ADULT
97110	CRANGON SEPTEMSPINOSA	ADULT
CRASVIRG	CRASSOSTREA VIRGINICA	ADULT
79872	CRASSOSTREA VIRGINICA	ADULT
78713	CRATENA PILATA	ADULT
CRATPILA	CRATENA PILATA	ADULT
72619	CREPIDULA	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
CREPIDUL	CREPIDULA	ADULT
CREPCONV	CREPIDULA CONVEXA	ADULT
72623	CREPIDULA FORNICATA	ADULT
CREPMACU	CREPIDULA MACULOSA	ADULT
72627	CREPIDULA PLANA	ADULT
CREPPLAN	CREPIDULA PLANA	ADULT
CRICORTH	CRICOTOPUS	ADULT
CRICBICI	CRICOTOPUS BICINCTUS	ADULT
129368	CRYPTOCHIRONOMUS	ADULT
CRYPTOCH	CRYPTOCHIRONOMUS	ADULT
129376	CRYPTOCHIRONOMUS FULVUS	ADULT
CRYPTOTE	CRYPTOTENDIPES	ADULT
CULICOID	CULICOIDES	ADULT
CYATHURA	CYATHURA	ADULT
CYATBURB	CYATHURA BURBANCKI	ADULT
92150	CYATHURA BURBANCKI	ADULT
CYATPOLI	CYATHURA POLITA	ADULT
92149	CYATHURA POLITA	ADULT
CYCLVARI	CYCLASPIS VARIANS	ADULT
91033	CYCLASPIS VARIANS	ADULT
CYMACOMP	CYMADUSA COMPTA	ADULT
CYRNFRAT	CYRNELLUS FRATERNUS	ADULT
117092	CYRNELLUS FRATERNUS	ADULT
95599	DECAPODA	ADULT
DEMICRYP	DEMICRYPTOCHIRONOMUS	ADULT
129421	DEMICRYPTOCHIRONOMUS	ADULT
68222	DEMONAX MICROPHTHALMUS	ADULT
DEMOMICR	DEMONAX MICROPHTHALMUS	ADULT
68898	DERO	ADULT
68904	DERO DIGITATA	ADULT
DEROOBTU	DERO OBTUSA	ADULT
129428	DICROTENDIPES	ADULT
DICROTEN	DICROTENDIPES	ADULT
DICRMODE	DICROTENDIPES MODESTUS	ADULT
DICRNERV	DICROTENDIPES NERVOSUS	ADULT
129452	DICROTENDIPES NERVOSUS	ADULT
66180	DIOPATRA CUPREA	ADULT
118831	DIPTERA	ADULT
66941	DISPIO UNCINATA	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
98966	DISSODACTYLUS MELLITAE	ADULT
81248	DONAX VARIABILIS	ADULT
DORIOBSC	DORIDELLA OBSCURA	ADULT
78439	DORIDELLA OBSCURA	ADULT
66426	DRILONEREIS LONGA	ADULT
114126	DUBIRAPHIA	ADULT
93848	DULICHIELLA APPENDICULATA	ADULT
156857	ECHINODERMATA	ADULT
157821	ECHINOIDEA	ADULT
92627	EDOTEA TRILOBA	ADULT
EDOTTRIL	EDOTIA TRILOBA	ADULT
93761	ELASMOPUS LAEVIS	ADULT
ELASLAEV	ELASMOPUS LAEVIS	ADULT
79952	ELLIPTIO COMPLANATA	ADULT
ELMIDAE	ELMIDAE	ADULT
129470	ENDOCHIRONOMUS	ADULT
ENOPSANG	ENOPLOBRANCHUS SANGUINEUS	ADULT
81022	ENSIS DIRECTUS	ADULT
101525	EPHEMERIDAE	ADULT
72233	EPITONIUM	ADULT
72237	EPITONIUM GREENLANDICUM	ADULT
72259	EPITONIUM HUMPHREYSII	ADULT
72249	EPITONIUM RUPICOLA	ADULT
EPOICOCL	EPOICOCLADIUS	ADULT
ERICATTE	ERICHSONELLA ATTENUATA	ADULT
ERICBRAS	ERICTHONIUS BRASILIENSIS	ADULT
93613	ERICTHONIUS BRASILIENSIS	ADULT
69438	ERPOBDELLIDAE	ADULT
65258	ETEONE	ADULT
65270	ETEONE FOLIOSA	ADULT
ETEOFOLI	ETEONE FOLIOSA	ADULT
65266	ETEONE HETEROPODA	ADULT
ETEOHETE	ETEONE HETEROPODA	ADULT
98081	EUCERAMUS PRAELONGUS	ADULT
65343	EUMIDA SANGUINEA	ADULT
EUPLCAUD	EUPLEURA CAUDATA	ADULT
73300	EUPLEURA CAUDATA	ADULT
65721	EXOGONE	ADULT
EXOGDISP	EXOGONE DISPAR	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
65722	EXOGONE DISPAR	ADULT
75997	FARGOA BUSHIANA	ADULT
76569	FERRISSIA	ADULT
68296	FILOGRANA	ADULT
94102	GAMMAROPSIS	ADULT
GAMMARUS	GAMMARUS	ADULT
93773	GAMMARUS	ADULT
GAMMDAIB	GAMMARUS DAIBERI	ADULT
93779	GAMMARUS DAIBERI	ADULT
93780	GAMMARUS FASCIATUS	ADULT
93783	GAMMARUS MUCRONATUS	ADULT
69459	GASTROPODA	SP.A
69459	GASTROPODA	ADULT
GASTROPO	GASTROPODA	ADULT
81511	GEMMA GEMMA	ADULT
GEMMGEMM	GEMMA GEMMA	ADULT
79555	GEUKENSIA DEMISSA	ADULT
GEUKDEMI	GEUKENSIA DEMISSA	ADULT
93397	GITANOPSIS	ADULT
66102	GLYCERA	ADULT
GLYCAMER	GLYCERA AMERICANA	ADULT
66106	GLYCERA AMERICANA	ADULT
GLYCDIBR	GLYCERA DIBRANCHIATA	ADULT
66107	GLYCERA DIBRANCHIATA	ADULT
66101	GLYCERIDAE	ADULT
66132	GLYCINDE SOLITARIA	ADULT
GLYCSOLI	GLYCINDE SOLITARIA	ADULT
129483	GLYPTOTENDIPES	ADULT
GLYPTOTE	GLYPTOTENDIPES	ADULT
GOMPHIDA	GOMPHIDAE	ADULT
GONIADID	GONIADIDAE	ADULT
66126	GONIADIDAE	ADULT
71542	GONIOBASIS	ADULT
65470	GYPTIS VITTATA	ADULT
HABESPEC	HABER CF. SPECIOSUS	ADULT
68746	HABER CF. SPECIOSUS	ADULT
76258	HAMINOEA SOLITARIA	ADULT
HAMISOLI	HAMINOEA SOLITARIA	ADULT
HARGRAPA	HARGERIA RAPAX	ADULT
64509	HARMOTHOE EXTENUATA	ADULT
129516	HARNISCHIA	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
HARNISCH	HARNISCHIA	ADULT
86110	HARPACTICOIDA	ADULT
93959	HAUSTORIIDAE	ADULT
HAVESCAB	HAVELOCKIA SCABRA	ADULT
HEPTAGEN	HEPTAGENIIDAE	ADULT
65467	HESIONIDAE	ADULT
HETEFILI	HETEROMASTUS FILIFORMIS	ADULT
67420	HETEROMASTUS FILIFORMIS	ADULT
89977	HETEROMYSIS FORMOSA	ADULT
HEXAGENI	HEXAGENIA	ADULT
101537	HEXAGENIA	ADULT
101552	HEXAGENIA LIMBATA	ADULT
HEXALIMB	HEXAGENIA LIMBATA	ADULT
98764	HEXAPANOPEUS ANGUSTIFRONS	ADULT
HIRUDINE	HIRUDINEA	ADULT
HOBSFLOR	HOBSONIA FLORIDA	ADULT
HOLOTHUR	HOLOTHUROIDEA	ADULT
70495	HYDROBIA TRUNCATA	ADULT
HYDRTRUN	HYDROBIA TRUNCATA	ADULT
HYDRSPEZ	HYDROBIIDAE	SP. Z MORRIS
HYDROBII	HYDROBIIDAE	ADULT
70493	HYDROBIIDAE	ADULT
HYDRSPEY	HYDROBIIDAE	SP. Y MORRIS
68281	HYDROIDES	ADULT
HYDRDIAN	HYDROIDES DIANTHUS	ADULT
68282	HYDROIDES DIANTHUS	ADULT
68283	HYDROIDES PROTULICOLA	ADULT
115641	HYDROPTILA	ADULT
115629	HYDROPTILIDAE	ADULT
ILYAOBSO	ILYANASSA OBSOLETA	ADULT
ILYOTEMP	ILYODRILUS TEMPLETONI	ADULT
68662	ILYODRILUS TEMPLETONI	ADULT
ISCHRECU	ISCHADIUM RECURVUM	ADULT
79561	ISCHADIUM RECURVUM	ADULT
ISOCFREY	ISOCHAETIDES FREYI	ADULT
68810	ISOCHAETIDES FREYI	ADULT
74804	KURTZIELLA ATROSTYLA	ADULT
LAEOCULV	LAEONEREIS CULVERI	ADULT
65965	LAEONEREIS CULVERI	ADULT
66653	LEITOSCOLOPLOS	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
LEITOSCO	LEITOSCOLOPLOS	ADULT
66656	LEITOSCOLOPLOS FRAGILIS	ADULT
LEITFRAG	LEITOSCOLOPLOS FRAGILIS	ADULT
66656	LEITOSCOLOPLOS ROBUSTUS	ADULT
LEITROBU	LEITOSCOLOPLOS ROBUSTUS	ADULT
LEPIDYTI	LEPIDACTYLUS DYTISCUS	ADULT
93998	LEPIDACTYLUS DYTISCUS	ADULT
64702	LEPIDASTHENIA COMMENSALIS	ADULT
64610	LEPIDONOTUS SUBLEVIS	ADULT
64611	LEPIDONOTUS VARIABILIS	ADULT
LEPTPLUM	LEPTOCHEIRUS PLUMULOSUS	ADULT
93486	LEPTOCHEIRUS PLUMULOSUS	ADULT
92067	LEPTOCHELIA RAPAX	ADULT
158432	LEPTOSYNAPTA TENUIS	ADULT
LEPTTENU	LEPTOSYNAPTA TENUIS	ADULT
90790	LEUCON AMERICANUS	ADULT
LEUCAMER	LEUCON AMERICANUS	ADULT
98453	LIBINIA	ADULT
68652	LIMNODRILUS CERVIX	ADULT
68654	LIMNODRILUS CLAPAREDIANUS	ADULT
68639	LIMNODRILUS HOFFMEISTERI	ADULT
LIMNHOFF	LIMNODRILUS HOFFMEISTERI	ADULT
68644	LIMNODRILUS UDEKEMIANUS	ADULT
LIMUPOLY	LIMULUS POLYPHEMUS	ADULT
65175	LINOPHERUS PAUCIBRACNCHIATA	ADULT
94212	LISTRIELLA	ADULT
LISTRIEL	LISTRIELLA	ADULT
LISTBARN	LISTRIELLA BARNARDI	ADULT
94213	LISTRIELLA BARNARDI	ADULT
LISTCLYM	LISTRIELLA CLYMENELLAE	ADULT
94214	LISTRIELLA CLYMENELLAE	ADULT
70528	LITTORIDINOPS TENUIPES	ADULT
68015	LOIMIA MEDUSA	ADULT
LOIMMEDU	LOIMIA MEDUSA	ADULT
66335	LUMBRINERIDAE	ADULT
66351	LUMBRINERIS TENUIS	ADULT
SCOLTENU	LUMBRINERIS TENUIS	ADULT
76483	LYMNAEIDAE	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
81916	LYONSIA	ADULT
81926	LYONSIA HYALINA	ADULT
81052	MACOMA BALTICA	ADULT
MACOBALT	MACOMA BALTICA	ADULT
MACOMITC	MACOMA MITCHELLI	ADULT
81054	MACOMA MITCHELLI	ADULT
MACOTENT	MACOMA TENTA	ADULT
81055	MACOMA TENTA	ADULT
67632	MACROCLYMENE ZONALIS	ADULT
80942	MACTRIDAE	ADULT
67043	MAGELONA	ADULT
98417	MAJIDAE	ADULT
67515	MALDANIDAE	ADULT
MALDANID	MALDANIDAE	ADULT
64739	MALMGRENIELLA	ADULT
MANAAEST	MANAYUNKIA AESTUARINA	ADULT
68171	MANAYUNKIA AESTUARINA	ADULT
91030	MANCOCUMA STELLIFERA	ADULT
573739	MARENZELLERIA VIRIDIS	ADULT
MAREVIRI	MARENZELLERIA VIRIDIS	ADULT
66301	MARPHYSA SANGUINEA	ADULT
MEDIAMBI	MEDIOMASTUS AMBISETA	ADULT
67439	MEDIOMASTUS AMBISETA	ADULT
72440	MELANELLA	ADULT
67762	MELINNA	ADULT
67766	MELINNA MACULATA	ADULT
MELINITI	MELITA NITIDA	ADULT
93812	MELITA NITIDA	ADULT
158020	MELLITA QUINQUIESPERFORATA	ADULT
155827	MEMBRANIPORA TENUIS	ADULT
MERCMERC	MERCENARIA MERCENARIA	ADULT
81496	MERCENARIA MERCENARIA	ADULT
129532	MICROCHIRONOMUS	ADULT
157755	MICROPHOLIS ATRA	ADULT
65476	MICROPHTHALMUS	ADULT
65478	MICROPHTHALMUS ABERRANS	ADULT
65477	MICROPHTHALMUS SCZELKOWII	ADULT
65480	MICROPHTHALMUS SIMILIS	ADULT
MICRRANE	MICROPROTOPUS RANEYI	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
94122	MICROPROTOPUS RANEYI	ADULT
MICRPEDE	MICROTENDIPES PEDELLUS	ADULT
E01060	MISCELLANEOUS TAXA	ADULT
79500	MODIOLUS	ADULT
MOLANNA	MOLANNA	ADULT
159576	MOLGULA ARENATA	ADULT
159557	MOLGULA MANHATTENSIS	ADULT
MONOTUBE	MONOCOROPHIUM TUBERCULATUM	ADULT
94519	MONOCULODES	SP1
MONTICEL	MONTICELLINA	ADULT
204530	MONTICELLINA DORSOBRANCIALIS	ADULT
MONTDORS	MONTICELLINA DORSOBRANCIALIS	ADULT
MUCRMUCR	MUCROGAMMARUS MUCRONATUS	ADULT
MULILATE	MULINIA LATERALIS	ADULT
80959	MULINIA LATERALIS	ADULT
MUSCULIU	MUSCULIUM	ADULT
81427	MUSCULIUM	ADULT
81428	MUSCULIUM TRANSVERSUM	ADULT
MYAAREN	MYA ARENARIA	ADULT
81692	MYA ARENARIA	ADULT
80651	MYSELLA	ADULT
80661	MYSELLA PLANULATA	ADULT
89856	MYSIDAE	ADULT
90138	MYSIDOPSIS	ADULT
MYSIALMY	MYSIDOPSIS ALMYRA	ADULT
90141	MYSIDOPSIS ALMYRA	ADULT
MYSIBIGE	MYSIDOPSIS BIGELOWI	ADULT
90139	MYSIDOPSIS BIGELOWI	ADULT
79451	MYTILIDAE (MOLLUSCA)	ADULT
MYTILEUC	MYTILOPSIS LEUCOPHAEATA	ADULT
81335	MYTILOPSIS LEUCOPHAEATA	ADULT
79454	MYTILUS EDULIS	ADULT
68854	NAIDIDAE	ADULT
68954	NAIS PARDALIS	ADULT
68956	NAIS PSEUDOBTUSA	ADULT
NAISSIMP	NAIS SIMPLEX	ADULT
NAISVARI	NAIS VARIABILIS	ADULT
128844	NANOCLADIUS	ADULT
NANOBALT	NANOCLADIUS BALTICUS	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
NANOCRAS	NANOCLADIUS CRASSICORNUS	ADULT
74103	NASSARIUS	ADULT
74109	NASSARIUS TRIVITTATUS	ADULT
NASSVIBE	NASSARIUS VIBEX	ADULT
74107	NASSARIUS VIBEX	ADULT
72888	NATICA PUSILLA	ADULT
72878	NATICIDAE	ADULT
65895	NEANTHES ARENACEODENTATA	ADULT
NEANAREN	NEANTHES ARENACEODENTATA	ADULT
65918	NEANTHES SUCCINEA	ADULT
NEANSUCC	NEANTHES SUCCINEA	ADULT
59490	NEMATODA	ADULT
57411	NEMERTEA	ADULT
NEMERTIN	NEMERTINEA	ADULT
90062	NEOMYSIS AMERICANA	ADULT
NEOMAMER	NEOMYSIS AMERICANA	ADULT
66010	NEPHTYIDAE	ADULT
66011	NEPHTYS	ADULT
66027	NEPHTYS BUCERA	ADULT
66028	NEPHTYS INCISA	ADULT
66030	NEPHTYS PICTA	ADULT
E02065	NEREIDAE	ADULT
65916	NEREIS GRAYI	ADULT
BAY0291	NO ORGANISMS FOUND	NONE
NOORGPRS	NO ORGANISMS FOUND	ABSENT
NOTOSPA	NOTOMASTUS	SP. A EWING
67423	NOTOMASTUS	ADULT
79126	NUCULA	ADULT
79133	NUCULA ANNULATA	ADULT
NUDIBRAN	NUDIBRANCHIA	ADULT
78156	NUDIBRANCHIA	ADULT
ODOSTOMI	ODOSTOMIA	ADULT
75447	ODOSTOMIA	ADULT
ODOSENGO	ODOSTOMIA ENGONIA	ADULT
75504	ODOSTOMIA ENGONIA	ADULT
116607	OECETIS	ADULT
OECETIS	OECETIS	ADULT
96737	OGYRIDES ALPHAEROSTRIS	ADULT
OGYRALPH	OGYRIDES ALPHAEROSTRIS	ADULT
68422	OLIGOCHAETA	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
OLIGOCHA	OLIGOCHAETA	ADULT
66157	ONUPHIDAE	ADULT
66164	ONUPHIS EREMITA	ADULT
66622	ORBINIA RISERI	ADULT
66570	ORBINIIDAE	ADULT
84195	OSTRACODA	ADULT
98710	OVALIPES	ADULT
67647	OWENIA FUSIFORMIS	ADULT
67644	OWENIIDAE	ADULT
OXYUSMIT	OXYUROSTYLIS SMITHI	ADULT
90923	OXYUROSTYLIS SMITHI	ADULT
PAGURUS	PAGURUS	ADULT
97775	PAGURUS	ADULT
97807	PAGURUS LONGICARPUS	ADULT
PAGULONG	PAGURUS LONGICARPUS	ADULT
96390	PALAEMONETES PUGIO	ADULT
127859	PALPOMYIA	ADULT
81889	PANDORA	ADULT
81896	PANDORA GOULDIANA	ADULT
98778	PANOPEUS HERBSTII	ADULT
95434	PARACAPRELLA TENUIS	ADULT
PARATENU	PARACAPRELLA TENUIS	ADULT
92290	PARACEREIS CAUDATA	ADULT
PARACAUD	PARACEREIS CAUDATA	ADULT
PARACHIR	PARACHIRONOMUS	ADULT
PARADIRE	PARACHIRONOMUS DIRECTUS	ADULT
94006	PARAHAUSTORIUS LONGIMERUS	ADULT
65493	PARAHESIONE LUTEOLA	ADULT
PARALUTE	PARAHESIONE LUTEOLA	ADULT
PARALAUT	PARALAUTERBORNIELLA	ADULT
94927	PARAMETOPELLA CYPRIS	ADULT
65321	PARANAITIS SPECIOSA	ADULT
52633	PARANTHUS RAPIFORMIS	ADULT
PARAFULG	PARAONIS FULGENS	ADULT
66697	PARAONIS FULGENS	ADULT
PARALONG	PARAPIONOSYLLIS LONGICIRRATA	ADULT
66937	PARAPRIONOSPIO PINNATA	ADULT
PARAPINN	PARAPRIONOSPIO PINNATA	ADULT
66553	PAROUGIA CAECA	ADULT
80388	PARVILUCINA MULTILINEATA	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
PARVMULT	PARVILUCINA MULTILINEATA	ADULT
67706	PECTINARIA	ADULT
67709	PECTINARIA GOULDI	ADULT
PECTGOUL	PECTINARIA GOULDI	ADULT
68594	PELOSCOLEX HETEROCHAETUS	ADULT
95602	PENAEIDAE	ADULT
158230	PENTAMERA PULCHERRIMA	ADULT
81947	PERIPLOMA MARGARITACEUM	ADULT
PEROVIRI	PEROPHORA VIRIDIS	ADULT
81627	PETRICOLA PHOLADIFORMIS	ADULT
81784	PHOLADIDAE	(MOLLUSCA)
PHORONIS	PHORONIS	ADULT
155462	PHORONIS	SP.
94077	PHOTIS PUGNATOR	ADULT
94633	PHOXOCEPHALIDAE	ADULT
65359	PHYLLODOCE	ADULT
65366	PHYLLODOCE ARENAE	ADULT
65228	PHYLLODOCIDAE	ADULT
PHYLOCEN	PHYLOCENTROPUS	ADULT
76698	PHYSELLA	ADULT
68994	PIGUETIELLA MICHIGANENSIS	ADULT
65540	PILARGIDAE	ADULT
98993	PINNIXA	ADULT
98998	PINNIXA CHAETOPTERANA	ADULT
99001	PINNIXA RETINENS	ADULT
98974	PINNOTHERES	ADULT
65616	PIONOSYLLIS	SP.A
65616	PIONOSYLLIS	SP.B
PISIDIUM	PISIDIUM	ADULT
81400	PISIDIUM	ADULT
67940	PISTA	ADULT
67941	PISTA CRISTATA	ADULT
81501	PITAR MORRHUANUS	ADULT
76591	PLANORBIDAE	ADULT
71549	PLEUROCERA	ADULT
65517	PODARKE OBSCURA	ADULT
65530	PODARKEOPSIS	ADULT
PODALEVI	PODARKEOPSIS LEVIFUSCINA	ADULT
64358	POLYCHAETA	UNIDENTIFIED/FRAGMENTS

SPEC_CODE	LATIN_NAME	LIFE_STAGE
67959	POLYCIRRUS	ADULT
67963	POLYCIRRUS EXIMIUS	ADULT
POLYEXIM	POLYCIRRUS EXIMIUS	ADULT
66789	POLYDORA	ADULT
POLYCOMM	POLYDORA COMMENSALIS	ADULT
POLYCORN	POLYDORA CORNUTA	ADULT
204501	POLYDORA CORNUTA	ADULT
66791	POLYDORA SOCIALIS	ADULT
66802	POLYDORA WEBSTERI	ADULT
POLYWEBS	POLYDORA WEBSTERI	ADULT
68419	POLYGORDIUS	ADULT
POLYNOID	POLYNOIDAE	ADULT
64397	POLYNOIDAE	ADULT
98083	POLYONYX GIBBESI	ADULT
POLYPEDI	POLYPEDILUM	ADULT
129657	POLYPEDILUM	ADULT
POLYHALT	POLYPEDILUM HALTERALE	ADULT
POLYILLI	POLYPEDILUM ILLINOENSE	ADULT
POLYSCAL	POLYPEDILUM SCALAENUM	ADULT
66838	PRIONOSPIO	ADULT
66843	PRIONOSPIO HETEROBRANCHIA	ADULT
PRIOHETE	PRIONOSPIO HETEROBRANCHIA	ADULT
66854	PRIONOSPIO PERKINSI	ADULT
PRIOPERK	PRIONOSPIO PERKINSI	ADULT
66846	PRIONOSPIO PYGMAEA	ADULT
PRISJENK	PRISTINELLA JENKINAE	ADULT
127729	PROBEZZIA	ADULT
PROBEZZI	PROBEZZIA	ADULT
96945	PROCESSA VICINA	ADULT
128277	PROCLADIUS	ADULT
PROCLADI	PROCLADIUS	ADULT
128316	PROCLADIUS SUBLETTEI	ADULT
68401	PROTODRILUS	ADULT
94009	PROTOHAUSTORIUS DEICHMANNAE	ADULT
94010	PROTOHAUSTORIUS WIGLEYI	ADULT
PSEUPAUC	PSEUDEURYTHOE PAUCIBRANCHIATA	ADULT
129851	PSEUDOCHIRONOMUS	ADULT
PSEUDOCH	PSEUDOCHIRONOMUS	ADULT
92155	PTILANTHURA TENUIS	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
PTILTENU	PTILANTHURA TENUIS	ADULT
PYRACAND	PYRAMIDELLA CANDIDA	ADULT
PYRAMIDE	PYRAMIDELLIDAE	ADULT
75446	PYRAMIDELLIDAE	ADULT
68794	QUISTRADRILUS MULTISETOSUS	ADULT
QUISMULT	QUISTRADRILUS MULTISETOSUS	ADULT
80962	RANGIA CUNEATA	ADULT
RANGCUNE	RANGIA CUNEATA	ADULT
129952	RHEOTANYTARSUS	ADULT
94730	RHEPOXYNIUS HUDSONI	ADULT
RHEPHUDS	RHEPOXYNIUS HUDSONI	ADULT
RHITHARR	RHITHROPANOPEUS HARRISII	ADULT
98790	RHITHROPANOPEUS HARRISII	ADULT
RICTPUNC	RICTAXIS PUNCTOSTRIATUS	ADULT
76083	RICTAXIS PUNCTOSTRIATUS	ADULT
SABEVULG	SABELLARIA VULGARIS	ADULT
67671	SABELLARIA VULGARIS	ADULT
68076	SABELLIDAE	ADULT
SACCKOWA	SACCOGLOSSUS KOWALEVSKII	ADULT
158626	SACCOGLOSSUS KOWALEVSKII	ADULT
SAYECHES	SAYELLA CHESAPEAKEA	ADULT
70946	SAYELLA CHESAPEAKEA	ADULT
67313	SCALIBREGMA INFLATUM	ADULT
66942	SCOLELEPIS	ADULT
SCOLELEP	SCOLELEPIS	ADULT
66944	SCOLELEPIS BOUSFIELDI	ADULT
E01056	SCOLELEPIS SQUAMATA	ADULT
SCOLTEXA	SCOLELEPIS TEXANA	ADULT
66949	SCOLELEPIS TEXANA	ADULT
66603	SCOLOPLOS RUBRA	ADULT
68232	SERPULIDAE	ADULT
SERPULID	SERPULIDAE	ADULT
SIALIS	SIALIS	ADULT
65551	SIGAMBRA	ADULT
65554	SIGAMBRA BASSI	ADULT
65552	SIGAMBRA TENTACULATA	ADULT
SIGATENT	SIGAMBRA TENTACULATA	ADULT
154520	SIPUNCULA	ADULT
79316	SOLEMYA VELUM	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
68985	SPECARIA JOSINAE	ADULT
SPHAERID	SPHAERIIDAE	ADULT
92339	SPHAEROMA QUADRIDENTATUM	ADULT
127761	SPHAEROMIAS	ADULT
65743	SPHAEROSYLLIS ACICULATA	ADULT
65747	SPHAEROSYLLIS TAYLORI	ADULT
SPHATAYL	SPHAEROSYLLIS TAYLORI	ADULT
66868	SPIO SETOSA	ADULT
67107	SPIOCHAETOPTERUS COSTARUM	ADULT
SPIOCOST	SPIOCHAETOPTERUS COSTARUM	ADULT
66781	SPIONIDAE	ADULT
SPIOBOMB	SPIOPHANES BOMBYX	ADULT
66897	SPIOPHANES BOMBYX	ADULT
80944	SPISULA SOLIDISSIMA	ADULT
99143	SQUILLA EMPUSA	ADULT
STENELMI	STENELMIS	ADULT
114095	STENELMIS	ADULT
94934	STENOTHOE	ADULT
STENMINU	STENOTHOE MINUTA	ADULT
69017	STEPHENSONIANA	ADULT
69020	STEPHENSONIANA TANDYI	ADULT
69018	STEPHENSONIANA TRIVANDRANA	ADULT
65084	STHENELAIS BOA	ADULT
129785	STICTOCHIRONOMUS	ADULT
STICDEVI	STICTOCHIRONOMUS DEVINCTUS	ADULT
STREBENE	STREBLOSPIO BENEDICTI	ADULT
66939	STREBLOSPIO BENEDICTI	ADULT
65822	STREPTOSYLLIS PETTIBONEAE	ADULT
65587	SYLLIDAE	ADULT
65803	SYLLIDES	ADULT
65812	SYLLIDES SETOSA	ADULT
SYLLVERR	SYLLIDES VERRILLI	ADULT
94567	SYNCHELIDIUM AMERICANUM	ADULT
TAGELUS	TAGELUS	ADULT
81271	TAGELUS	ADULT
TAGEDIVI	TAGELUS DIVISUS	ADULT
81274	TAGELUS DIVISUS	ADULT
81272	TAGELUS PLEBEIUS	ADULT
91573	TANAISSUS PSAMMOPHILUS	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
128324	TANYPUS	ADULT
TANYNEOP	TANYPUS NEOPUNCTIPENNIS	ADULT
TANYTTRB	TANYTARSINI	ADULT
TANYTARS	TANYTARSUS	ADULT
129978	TANYTARSUS	ADULT
66728	TAUBERIA GRACILIS	ADULT
81074	TELLINA	ADULT
TELLAGIL	TELLINA AGILIS	ADULT
81088	TELLINA AGILIS	ADULT
81032	TELLINIDAE	ADULT
68760	TELMATODRILUS VEJDOVSKYI	ADULT
TEREBELL	TEREBELLIDAE	ADULT
67899	TEREBELLIDAE	ADULT
97699	THALASSINIDAE	ADULT
THARSPA	THARYX	SP. A MORRIS
67141	THARYX	SP.A
95648	TRACHYPENAEUS CONSTRICTUS	ADULT
67364	TRAVISIA	SP.A
TRIBJUCU	TRIBELOS JUCUNDUS	ADULT
68585	TUBIFICIDAE	WITHOUT CAPILIFORM CHAETAE
68585	TUBIFICIDAE	WITH CAPILIFORM CHAETAE
TUBIFIWO	TUBIFICIDAE	IMMATURE W/O CAP. CHAETE
TUBIFIWI	TUBIFICIDAE	IMMATURE W/CAP. CHAETE
68688	TUBIFICOIDES BROWNAE	ADULT
TUBIHETE	TUBIFICOIDES HETEROCHAETUS	ADULT

SPEC_CODE	LATIN_NAME	LIFE_STAGE
TURBELLA	TURBELLARIA	ADULT
53964	TURBELLARIA	ADULT
75676	TURBONILLA	ADULT
75676	TURBONILLA	SP.B
TURBONIL	TURBONILLA	ADULT
75710	TURBONILLA AEQUALIS	ADULT
TURBINTE	TURBONILLA INTERRUPTA	ADULT
75687	TURBONILLA INTERRUPTA	ADULT
74555	TURRIDAE	SP.A
93629	UNCIOLA	ADULT
93635	UNCIOLA DISSIMILIS	ADULT
93632	UNCIOLA IRRORATA	ADULT
93633	UNCIOLA SERRATA	ADULT
UNIONICO	UNIONICOLA	ADULT
UNIONIDA	UNIONIDAE	ADULT
79913	UNIONIDAE	ADULT
98209	UPOGEBIA AFFINIS	ADULT
UROSCINE	UROSALPINX CINEREA	ADULT
70349	VALVATA SINCERA	ADULT
71072	VITRINELLA FLORIDANA	ADULT
71064	VITRINELLIDAE	ADULT
70304	VIVIPARIDAE	ADULT
98748	XANTHIDAE	ADULT
XANTHIDA	XANTHIDAE	ADULT
79273	YOLDIA LIMATULA	ADULT

METHODOLOGY DESCRIBING CHAIN OF CUSTODY FOR WATER QUALITY AND SAMPLES
See following document for details:
Valente, R. and Strobel, C.J. 1993. Environmental Monitoring and Assessment Program-Estuaries: 1993
Virginian Province Quality Assurance Project Plan. U.S. EPA,NHEERL-AED, Narragansett, RI. May 1993

WATER QUALITY AND SEDIMENT ANALYSIS TECHNIQUES
A Sea-Bird Electronics, Inc. model SBE-25 SeaLogger CTD is a self-contained array of instruments capable of measuring salinity, temperature, dissolved oxygen, pH, transmissivity (an estimate of suspended solids concentration), fluorescence (an estimate of chlorophyll_a concentration) and photosynthetically active radiation (PAR; a measurement of the intensity of light in the range of wavelengths used by algae in photosynthesis). Oxygen was measured with a Beckman polarographic DO electrode. The core of the unit is a data logger which stores all data collected by the individual probes. The entire array is powered internally using batteries; therefore, it does not require any electronic connection to the boat during operation. Supplied with the instrument is the software required for communicating with the data logger and for downloading data to an on-board computer.

>PARAMETER: TOTAL_DEPTH(Total Station Depth, Meters)
-COLLECTION METHODS:
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES:
D.R. Reifsteck and C.J. Strobel 1993.Environmental Monitoring And Assessment Program: Near Coastal
Component 1993 Virginian Province Effort-Field Operations and Safety Manual. Environmental Protection
Agency. NHEERL-AED. Narragansett,RI.

>PARAMETER: Latitude and Longitude (Degrees, decimal minutes and seconds)
-COLLECTION METHODS: Station positions were selected by GIS based on random strata site selection.
Locations were then entered into a Northstar LORAN or Raytheon GPS receivers. Sampling protocol
dictates the navigation goal was to be within 100 m of the assigned latitude and longitude of a
sampling site.
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES:
Valente, R., C.J. Strobel, J.E. Pollard, K.M. Peres, T.C. Chang and J. Rosen. 1990. Quality Assurance
Project Plan for EMAP Near Coastal: 1990 Demonstration Project. U.S. Environmental Protection Agency.
NHEERL-AED. Narragansett,RI.

>PARAMETER: SAMPLE_DEPTH (Sampling Depth, Meters)
-COLLECTION METHODS: Sea-Bird SeaLogger CTD equipped probes for salinity, temperature, dissolved
oxygen (DO) concentration, light transmission, chlorophyll a fluorescence, and PAR
SAMPLE PRESERVATIVES: N/A
-SAMPLE STORAGE ENVIRONMENT: N/A
-TIME IN STORAGE: N/A
-LAB TECHNIQUES WITH REFERENCES:
D.R. Reifsteck and C.J. Strobel 1993.Environmental Monitoring And Assessment Program: Near Coastal
Component 1993 Virginian Province Effort-Field Operations and Safety Manual. Environmental Protection
Agency. NHEERL-AED. Narragansett,RI.

>PARAMETER: WTEMP (Water Temperature, Centigrade)
-COLLECTION METHODS: Sea-Bird SeaLogger CTD equipped probes for salinity, temperature, dissolved
oxygen (DO) concentration, light transmission, chlorophyll a fluorescence, and PAR
-SAMPLE PRESERVATIVES: N/A
-SAMPLE STORAGE ENVIRONMENT: N/A
-TIME IN STORAGE: N/A
-LAB TECHNIQUES WITH REFERENCES:
D.R. Reifsteck and C.J. Strobel 1993.Environmental Monitoring And Assessment Program: Near Coastal
Component 1993 Virginian Province Effort-Field Operations and Safety Manual. Environmental Protection
Agency. NHEERL-AED. Narragansett,RI.

>PARAMETER: SPCOND (Conductivity,umHo/cm)
-COLLECTION METHODS: Sea-Bird SeaLogger CTD equipped probes for salinity, temperature, dissolved
oxygen (DO) concentration, light transmission, chlorophyll a fluorescence, and PAR
-SAMPLE PRESERVATIVES: N/A
-SAMPLE STORAGE ENVIRONMENT: N/A
-TIME IN STORAGE: N/A
-LAB TECHNIQUES WITH REFERENCES:
D.R. Reifsteck and C.J. Strobel 1993.Environmental Monitoring And Assessment Program: Near Coastal
Component 1993 Virginian Province Effort-Field Operations and Safety Manual. Environmental Protection
Agency. NHEERL-AED. Narragansett,RI.

>PARAMETER: DO (Dissolved Oxygen, mg\l)
-COLLECTION METHODS: Oxygen was measured with a Beckman polarographic DO electrode.
-SAMPLE PRESERVATIVES: N/A
-SAMPLE STORAGE ENVIRONMENT: N/A
-TIME IN STORAGE: N/A
-LAB TECHNIQUES WITH REFERENCES:
D.R. Reifsteck and C.J. Strobel 1993.Environmental Monitoring And Assessment Program: Near Coastal Component 1993 Virginian Province Effort-Field Operations and Safety Manual. Environmental Protection Agency. NHEERL-AED. Narragansett,RI.

>PARAMETER: SALINITY (Salinity, psu)
-COLLECTION METHODS: Sea-Bird SeaLogger CTD equipped probes for salinity, temperature, dissolved oxygen (DO) concentration, light transmission, chlorophyll a fluorescence, and PAR
-SAMPLE PRESERVATIVES: N/A
-SAMPLE STORAGE ENVIRONMENT: N/A
-TIME IN STORAGE: N/A
-LAB TECHNIQUES WITH REFERENCES: N/A
D.R. Reifsteck and C.J. Strobel 1993.Environmental Monitoring And Assessment Program: Near Coastal Component 1993 Virginian Province Effort-Field Operations and Safety Manual. Environmental Protection Agency. NHEERL-AED. Narragansett,RI.

PARAMETER

>PARAMETER:SAND (Sand Content, %), CLAY (Clay Content, %), Silt(Silt Content, %) , Moist(Moisture %) PHI25, PHI50, PHI75, Skewness
-COLLECTION METHODS: Young-modified Van Veen Grab sampler was used to collect sediment grabs for benthic analyses followed by field sieving through a 0.5mm sieve and preserved in the field. 20ml and 100ml sample were taken from a bottom grab and frozen.
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: Refrigerated until analysis
-TIME IN STORAGE: Holding Time Unknown
-LAB TECHNIQUES WITH REFERENCES:
Plumb, R.H. (1981), Procedures for handling and chemical analysis of
        sediment and water samples. Prepared for the U.S. Environmental
        Protection Agency/Corps of Engineers Technical Committee of Criteria
        for Dredge and Fill Material. Published by Environmental Laboratory,
        U.S. Army Waterways Experimental Station, Vicksburg. Mississippi.
        Technical Report EPA/CE-81-1

>PARAMETER: TOC (Total organic carbon content in percent),
-COLLECTION METHODS: Young-modified Van Veen Grab sampler was used to collect sediment grabs for benthic analyses followed by field sieving through a 0.5mm sieve and preserved in the field. 20ml and 100ml sample were taken from a bottom grab and frozen.
-SAMPLE PRESERVATIVES: Frozen
-SAMPLE STORAGE ENVIRONMENT: Frozen until analysis
-TIME IN STORAGE: Holding time unknown.
-LAB TECHNIQUES WITH REFERENCES: The concentration of total organic carbon in each sediment sample was determined by ultraviolet light-promoted persulfate oxidation.

U.S. EPA. 1995. Environmental Monitoring and Assessment Program (EMAP):Laboratory Methods Manual-Estuaries, Volume 1: Biological and Physical Analyses. U.S. Environmental Protection Agency, Office of Research and Development, Narragansett, RI. EPA/620/R-95/008.

VARIABLES NAMES AND DESCRIPTIONS FOR DATA FILES
Structures for data files on http://www.chesapeakebay.net
> BENTHIC SURVEY EVENT DATA

Field Name	Type	Width	Descriptions
EVENT_ID	Number	8	Database Generated Event Identification Number
SOURCE	Text	6	Data Collection Agency
SAMPLE_DATE	Text	8	Sampling Date (MM/DD/YYYY)
LATITUDE	Number	8.5	Latitude (Decimal Degrees- NAD83)
LONGITUDE	Number	8.5	Longitude (Decimal Degrees-NAD83)
R_DATE	Text	8	Data Version Date (MM/DD/YYYY)
SITETYPE	Text	4	Sampling Site Type
STATION	Text	15	Sampling Station
TOTAL_DEPTH	Number	8.1	Total Station Depth (Meters)
SAMPLE_TIME	Text	5	Sample Collection Time (HHMM)

> BENTHIC WATER QUALITY SURVEYS

Field Name	Type	Width	Descriptions
EVENT_ID	Number	8	Database Generated Event Identification Number
SOURCE	Text	6	Data Collection Agency
SAMPLE_TYPE	Text	2	Sample Collection Type
STATION	Text	15	Sampling Station
SAMPLE_DATE	Text	8	Sampling Date (MM/DD/YYYY)
SAMPLE_DEPTH	Number	8.1	Sampling Depth
SAMPLE_NUMBER	Number	8.0	Sample Number
REPORTED_PARAMETER	Text	15	Sampling Parameter
REPORTED_VALUE	Number	8.4	Sampling Parameter Value
REPORTED_UNITS	Text	15	Reporting Units of Value
WQ_METHOD	Text	8	Chesapeake Bay Program Parameter Analysis Code
R_DATE	Text	8	Data Version Date (MM/DD/YYYY)

>BENTHIC SEDIMENT SURVEY DATA

Field Name	Type	Width	Descriptions
EVENT_ID	Number	8	Database Generated Event Identification Number
SOURCE	Text	6	Data Collection Agency
SAMPLE_TYPE	Text	2	Sample Collection Type
STATION	Text	15	Sampling Station
SAMPLE_DATE	Text	8	Sampling Date (MM/DD/YYYY)
TOTAL_DEPTH	Number	8.1	Total Station Depth
SAMPLE_NUMBER	Number	8.0	Sample Number
REPORTED_PARAMETER	Text	15	Sampling Parameter
REPORTED_VALUE	Number	8.4	Sampling Parameter Value
REPORTED_UNITS	Text	15	Reporting Units of Value
R_DATE	Text	8	Data Version Date (MM/DD/YYYY)

> BENTHIC SURVEY BIOTA EVENT DATA

Field Name	Type	Width	Description
EVENT_ID	Number	8	Database Generated Event Identification Number
SOURCE	Text	6	Data Collection Agency
SAMPLE_DATE	Date/Time	8	Sampling Date (MM/DD/YYYY)
LATITUDE	Number	8.5	Latitude (Decimal Degrees-NAD83)
LONGITUDE	Number	8.5	Longitude (Decimal Degrees-NAD83)
PENETR	Number	8.4	Sampling Gear Penetration Depth (cm)
R_DATE	Date/Time	8	Data Version Date (MM/DD/YYYY)
SAMPLE_NUMBER	Number	8.0	Sample Number
SITE_TYPE	Text	10	Sampling Site Type
STATION	Text	15	Sampling Station
TOTAL_DEPTH	Number	8.1	Total Station Depth (Meters)
SAMPLE_TIME	Date/Time	8	Sample Collection Time (HHMM)

>BENTHIC TAXONOMIC SURVEY DATA

Field Name	Type	Width	Descriptions
EVENT_ID	Number	8	Database Generated Event Identification Number
SOURCE	Text	6	Data Collection Agency
SAMPLE_TYPE	Text	7	Sample Collection Type
STATION	Text	15	Sampling Station
SAMPLE_DATE	Date/Time	8	Sampling Date (MM/DD/YYYY)
SAMPLE_NUMBER	Number	8.0	Sample Number
GMETHOD	Text	3	Chesapeake Bay Program Gear Method Code
CONVFACT	Number	8.2	Conversion Factor (# Individual/Sample to # Individuals/Meter Squared)
NET_MESH	Number	8.2	Screen Mesh Width (Millimeters)
TSN	Text	7	ITIS Taxon Serial Number
LIFE_STAGE	Text	45	Species Life Stage
LATIN_NAME	Text	45	Species Latin Name
REPORTING_VALUE			
	Number	12	Total Count of Given Taxa in Sample
REPORTING_UNITS	Text	15	Reporting Units of Value
NODCCODE	Text	12	National Oceanographic Data Center Species Code
SPEC_CODE	Text	14	Agency Species Code
SER_NUM	Text	12	Sample Serial Number
R_DATE	Date/Time	8	Data Version Date (MM/DD/YYYY)

>BENTHIC BIOMASS SURVEY DATA

Field Name	Type	Width	Descriptions
EVENT_ID	Number	8	Database Generated Event Identification Number
SOURCE	Text	6	Data Collection Agency
SAMPLE_TYPE	Text	7	Sample Collection Type
STATION	Text	15	Sampling Station
SAMPLE_DATE	Date/Time	8	Sampling Date (MM/DD/YYYY)
SAMPLE_NUMBER	Number	8.0	Sample Number
GMETHOD	Text	3	Chesapeake Bay Program Gear Method Code
CONVFACT	Number	8.2	Conversion Factor (# Individual/Sample to # Individuals/Meter Squared)
NET_MESH	Number	8.2	Screen Mesh Width (Millimeter)
TSN	Text	7	ITIS Taxon Serial Number
LIFESTAGE	Text	45	Organisms Life Stage

LATIN_NAME	Text	45	Species Latin Name
VALUE_TYPE	Text	10	Actual or Estimated Parameter Value
REPORTING_VALUE	Number	8.4	Taxon Biomass
REPORTING_UNITS	Text	15	Sampling Parameter Reporting Units
NODCCODE	Text	12	National Oceanographic Data Center Species Code
SPEC_CODE	Text	14	Agency Species Code
SER_NUM	Text	12	Agency Sample Serial Number
R_DATE	Date/Time	8	Data Version Date (MM/DD/YYYY)

> The following fields may also appear in a downloaded data set:

Name	Type	Width	Description
BASIN	Text	20	Chesapeake Bay Basin Designation
HUC8	Text	8	USGS Eight Digit Hydrologic Unit Code
CATALOGING_UNIT_DESCRIPTION	Text	50	USGS Cataloging Unit Code Description
FIPS	Text	5	Federal Information Processing Code
STATE	Text	3	Federal Information Processing Code State Designation
COUNTY_CITY	Text	30	Federal Information Processing Code City/County Designation
CBSEG_2003	Text	6	2003 Chesapeake Bay Segment Designation
CBSEG_2003_DESCRIPTION	Text	50	2003 Chesapeake Bay Segment Designation Description

#VARIABLE NAMES AND DESCRIPTIONS FOR SPECIES KEY
These tables cross references Versar species codes and spellings with current Integrated Taxonomic Information System (ITIS) and National Oceanographic Data Center taxonomic codes and spellings. Web address: http://www.chesapeakebay.net/

Name	Type	Width	Description
SPECCODE	Text	14	Data provider Species Code
SOURCE_LBL	Text	45	Source Species Latin Name
LBL	Text	45	ITIS Latin Name
NODC_LBL	Text	45	National Oceanographic Data Center Latin Name
NODCCODE	Text	12	National Oceanographic Data Center Species Code
TSN	Text	7	ITIS Taxon Serial Number
R_DATE	Date/Time	8	Version Date of Data (YYYYMMDD)

REFERENCE CODES IN DATA FILES AND TAXONOMIC KEY
See The 2000 Guide to Biological and Living Resources Data for full listing.

> DATA_TYPE: Data Type
BE   Benthic
FL   Fluorescence
MI   Microzooplankton
MZ   Mesozooplankton
PD   Primary Production
PH   Phytoplankton
PP   Picoplankton

>A/EAFDW: Actual or Estimated Ash Free Dry Weight
          A or ACTUAL - Actual Determination of Ash Free Dry Weight
          E or ESTIMATE - Estimated Ash Free Dry Weight

>SOURCE : Data Collection Agency
          VERSAR- Versar Incorporated

>COLTYPE: Collection Type
          D or DISCRETE - Discrete Sample

C or COMPOSITE- Composite Sample

>BASIN - Sampling Station Tributary or Mainstem Designation

TRIB_COD	BASIN
BAY	CHESAPEAKE BAY
CHS	CHESTER RIVER
CHP	CHOPTANK RIVER
ELZ	ELIZABETH RIVER
JAM	JAMES RIVER
PAT	PATAPSCO RIVER
PAX	PATUXNET RIVER
POT	POTOMAC RIVER
RAP	RAPPAHANOCK RIVER
YRK	YORK RIVER

>GMETHOD- Sampling Gear Codes
  16-Post-Hole Digger (250 square centimeters)
  20-Wildco Box Core Grab(220 square centimeters)
  96-Hydrolic Van Veen Grab(1000 square centimeters)
  97-Young Modified Van Veen Grab (440 square centimeters)
  98-Petite Ponar Grab (250 square centimeters)

>TSN: Interagency Taxonomic Identification System, Taxon Serial Numbers Note for current listing of Chesapeake Bay Program Species and their codes . Organisms without current serial numbers have ALL been assigned TSN of BAYXXXX.

>LIFE STAGE
  Life stages are any addional descriptors of a species in addition to
  The scientific name see IN HOUSE SPECIES LIST for details

>LATIN_NAME
  See for IN HOUSE SPECIES LIST for details

>NODCCODE: National Oceanographic Data Center Species Code
  NOTE: For current listing of Chesapeake Bay species and their codes,
  see 1998 Chesapeake Bay Basin Species List.

>STATION- Station Names-Please See Station Names and
  Positions for details on name designation.

>SKIP- THE SKIP VARIABLE OF THE BENTHIC TAXONOMIC AND ABUNDANCE
DATA RECORD: In counting the number of taxa present in a sample, general taxonomic designations at the generic, familial, and higher taxonomic levels are dropped if there is one valid lower level designation for that group. For example, if both *Leitoscoloplos* sp. And *Leitoscoloplos fragilis* have been identified in one sample, *Leitoscoloplos* sp. is skipped when counting the number of taxa. Skip codes are used to track these general taxonomic designations.

>SITETYPE- Sampling Station Site Type
  F or FIXED - Fixed Sampling Site
  R or RANDOM- Randomly Selected Site within a habitat area

>TSN: Interagency Taxonomic Identification System taxon serial numbers
   NOTE: For current listing of Chesapeake Bay species and their codes,
   see the 2007 Bay Basin Species List for details.

>PARAMETERS-

PARAMETER	DESCRIPTION
CLAY	CLAY CONTENT,PERCENT
DO	DISSOLVED OXYGEN
PENETR	GEAR PENETRATION DEPTH
SALINITY	SALINITY
SAND	SAND CONTENT, PERCENT
SILT	SILT CONTENT, PERCENT
SPCOND	SPECIFIC CONDUCTIVITY
SECCHI	SECCHI DEPTH
TIC	CARBONTATE CONTENT
TOC	TOTAL ORGAINIC CARBON
WTEMP	WATER TEMPERATURE, CENTEGRAGE

> HUC8: USGS Hydrologic Unit Codes

HUC8	CATALOGING_UNIT_DESCRIPTION
02050306	LOWER SUSQUEHANNA
02060001	UPPER CHESAPEAKE BAY
02060002	CHESTER-SASSAFRAS
02060003	GUNPOWDER-PATAPSCO
02060004	SEVERN
02060005	CHOPTANK
02060006	PATUXENT
02060007	BLACKWATER-WICOMICO
02060008	NANTICOKE
02060009	POCOMOKE
02070010	MIDDLE POTOMAC-ANACOSTIA-OCCOQUAN
02070011	LOWER POTOMAC

>FIPS: Federal Information Processing Codes

FIPS	NAME	FIPS	NAME
24003	ANNE ARUNDEL	24035	QUEEN ANNES
24005	BALTIMORE	24037	SAINT MARYS
24009	CALVERT	24039	SOMERSET
24011	CAROLINE	24041	TALBOT
24015	CECIL	24045	WICOMICO
24017	CHARLES	24510	BALTIMORE CITY
24019	DORCHESTER	51001	ACCOMACK
24025	HARFORD	51059	FAIRFAX
24029	KENT	51099	KING GEORGE
24033	PRINCE GEORGES	51153	PRINCE WILLIAM
		51179	STAFFORD

51193 WESTMORELAND

> CBSEG_2003: Chesapeake Bay Program Monitoring Segment

CBSEG_2003	DESCRIPTION
BACOH	BACK RIVER-OLIGOHALINE REGION
BIGMH	BIG ANNEMESSEX RIVER-MESOHALINE REGION
BOHOH	BOHEMIA RIVER-OLIGOHALINE REGION
BSHOH	BUSH RIVER-OLIGOHALINE REGION
CB1TF	CHESAPEAKE BAY-TIDAL FRESH REGION
CB2OH	CHESAPEAKE BAY-OLIGOHALINE REGION
CB3MH	CHESAPEAKE BAY-MESOHALINE REGION
CB4MH	CHESAPEAKE BAY-MESOHALINE REGION
CB5MH	CHESAPEAKE BAY-MESOHALINE REGION
CHOMH1	CHOPTANK RIVER-MESOHALINE REGION 1
CHOMH2	CHOPTANK RIVER-MESOHALINE REGION 2
CHOOH	CHOPTANK RIVER-OLIGOHALINE REGION
CHOTF	CHOPTANK RIVER-TIDAL FRESH REGION
CHSMH	CHESTER RIVER-MESOHALINE REGION
CHSOH	CHESTER RIVER-OLIGOHALINE REGION
CHSTF	CHESTER RIVER-TIDAL FRESH REGION
EASMH	EASTERN BAY-MESOHALINE REGION
ELKOH	ELK RIVER-OLIGOHALINE REGION
FSBMH	FISHING BAY-MESOHALINE REGION
GUNOH	GUNPOWDER RIVER-OLIGOHALINE REGION
HNGMH	HONGA RIVER-MESOHALINE REGION
LCHMH	LITTLE CHOPTANK RIVER-MESOHALINE REGION
MAGMH	MAGOTHY RIVER-MESOHALINE REGION
MANMH	MANOKIN RIVER-MESOHALINE REGION
MATTF	MATTAWOMAN CREEK-TIDAL FRESH REGION
MIDOH	MIDDLE RIVER-OLIGOHALINE REGION
NANMH	NANTICOKE RIVER-MESOHALINE REGION
NANOH	NANTICOKE RIVER-OLIGOHALINE REGION
NORTF	NORTHEAST RIVER-TIDAL FRESH REGION
PATMH	PATAPSCO RIVER-MESOHALINE REGION
PAXMH	PATUXENT RIVER-MESOHALINE REGION
PAXOH	PATUXENT RIVER-OLIGOHALINE REGION
PAXTF	PATUXENT RIVER-TIDAL FRESH REGION
POCMH	POCOMOKE RIVER-MESOHALINE REGION
POCOH	POCOMOKE RIVER-OLIGOHALINE REGION
POTMH	POTOMAC RIVER-MESOHALINE REGION
POTOH	POTOMAC RIVER-OLIGOHALINE REGION
POTTF	POTOMAC RIVER-TIDAL FRESH REGION
RHDMH	RHODE RIVER-MESOHALINE REGION
SASOH	SASSAFRAS RIVER-OLIGOHALINE REGION
SEVMH	SEVERN RIVER-MESOHALINE REGION
SOUMH	SOUTH RIVER-MESOHALINE REGION
TANMH	TANGIER SOUND-MESOHALINE REGION
WICMH	WICOMICO RIVER-MESOHALINE REGION
WSTMH	WEST RIVER-MESOHALINE REGION

>PROGRAM- Chesapeake Bay Program Monitoring Program Designation

PROGRAM   DESCRIPTION
EPA\NCAS   EPA EMAP NATIONAL COASTAL ASSESSMENT PROGRAM
HISTORIC   PRE-CHESAPEAKE BAY MONITORING PROGRAM
WQMP   CHESAPEAKE BAY MAINSTEM AND TIDAL TRIBUTARY WATER QUALITY
               MONITORING PROGRAM
> PROJECT - Chesapeake Bay Program Monitoring Project Designation

PROJECT   DESCRIPTION
MAIN/TRIB   LONG-TERM BENTHIC MONITORING PROGRAM
VA/CBAY   VIRGINIA COASTAL BAY MONITORING
VA/HIST   VIRGINIA HISTORIC DATA RECOVERY

>PARAMETER and UNIT: Measured Parameter and reporting units.
PARAMETER   UNITS
AFDW_TAX   GRAMS/SAMPLE
CLAY   PERCENT
COUNT   NUMBER/SAMPLE
DO   MG/L
KURTOSIS   FOLK METHOD
MEANDIAM   PHI
MEDDIAM   PHI
SALINITY   PPT
SAND   PERCENT
SILT   PERCENT
SILTCLAY   PERCENT
SKEWNESS   FOLK METHOD
SORT   FOLK METHOD
VOLORG   PERCENT
WTEMP   DEG C

NUMERIC WARNING AND ERROR BOUNDS
Variable   Valid Ranges
AFDW   0- 999.9999
TIC   0 - 100   PERCENT
TOC   0 - 100   PERCENT
COUNT   0-99999999
SPCOND   0 - 50000   uVHOS
DO   0- 15.0   PPT
PENETR   0-30.0
SALINITY   0 - 32.0   PPT
SAMPLE_DEPTH   1-100 METERS
SAMPLE_NUMBER   1-25
SAMPLE_TIME   0000-2400 missing time denoted as 00:00
SAND   0-100   PERCENT
SILT   0-100   PERCENT
CLAY   0-100   PERCENT
TOTAL_DEPTH   0.1-100 METERS
WTEMP   0- 35   DEGREES CELSIUS

#IMPORTANT DATA REVISIONS

THE LIVING RESOURCES DATA MANAGER RECOMMENDS THAT ALL DATA ANALYSIS BE
ERFORMED WITH THE MOST RECENT DATA SETS VERSIONS AVAILABLE. HOWEVER IF YOU HAVE
BEEN WORKING WITH OLDER DATA SETS THE FOLLOWING ARE IMPORTANT CHANGES TO BE
AWARE OF.

07/20/2012- LBL all Latin Names and spelling for names have been corrected InteragencyTaxonomic Identification System accepted spelling.

07/20/2012- NODCCODES all Species have been given their assigned National Oceanographic Data Center Version 8.0 Species Codes where possible. This Hiracrchial Code provides taxonomic information about a given species. If A code number is not available, a partial code based on available taxonomic Information ending with alphabetic characters has been provided.

07/20/2012- TSN all Species have been given their assigned InteragencyTaxonomic Identification System taxon serial number. The taxon serial number is a permanent number assigned to a species and does not change with changes in taxonomic classification. Species without assigned coded have been assigned temporary BAYXXXX serial numbers. Permanent ITIS serial numbers have been applied for.

07/20/2012- Samples analyzed for biological content and found to contain no organisms are recorded in the data base with an empty count record and a TSN of BAY0229.

07/20/2012- The time of sampling was not recorded in this data set. All sample times set to 00:00:00

7/20/2012-There is additional toxicity, fishery, water quality and biotic index associated with the benthic sampling events in this study which are not included in the CBPO data base. Other EMAP collected parameter for the Chesapeake Bay region can be obtained at http://oaspub.epa.gov/emap/webdev_emap.search or http://www.epa.gov/emap/html/data/index.html

7/20/2012-Note the following fixed positons have multiple stations names in this data set. All station original EMAP station name have been preserved on sampling data.

LATITUDE	LONGITUDE	STATION	STATION	STATION	STATION
37.715	-76.277	VA90-060	VA91-060	VA92-060	VA93-060
38.012	-76.11	VA90-050	VA91-050	VA92-050	VA93-050
38.161	-76.026	VA91-045	VA92-045	VA93-045	
38.737	-77.033	VA90-188	VA91-188	VA92-188	VA93-188
39.129	-76.281	VA90-058	VA91-058	VA92-058	VA93-058
39.27	-76.443	VA90-090	VA91-090		
39.305	-76.41	VA90-136	VA91-136	VA92-136	VA93-136

Deleted Stations VA90-195 and VA90-201 not found in original emap data set and positions appear to be incorrect.

#KEY WORDS (EXCLUDING VARIABLE NAMES)

Benthic Taxon Counts
Benthic Organism densities
Benthic Biomass
Benthic Organism Biomass
Benthic sediments
Sediment characterization
Water Quality Measurement
Hydrographic Profiles
Benthic Sampling Event

Benthic Monitoring Surveys

**THIS IS THE END OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
COASTAL OCEAN ASSESSMENTS, STATUS, AND TRENDS
BIOEFFECTS ASSESSMENT PROGRAM
CHESAPEAKE BAY – SPECIAL BENTHIC SURVEY
DATA DICTIONARY**