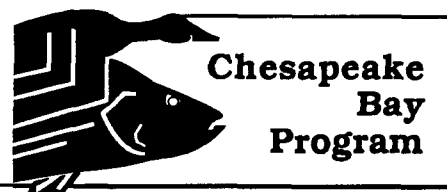


Chesapeake Bay Basin Comprehensive List of Toxic Substances

U.S. Environmental Protection Agency
Region III Information Resource
Center (3PM52)
841 Chestnut Street
Philadelphia, PA 19107

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April 1992

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Acknowledgements

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This document was produced with the assistance of the Chesapeake Bay Program Toxics and Living Resources Subcommittees' joint Criteria and Standards Workgroup.

Comprehensive List

The Chesapeake Bay Basin Comprehensive List of Toxic Substances is a compilation of the toxic substances detected in, released, or applied to all media (water, soil, sediment, tissue and air) within the Chesapeake Bay basin. A substance's inclusion in this list does not constitute evidence of potential or existing environmental impact. It merely documents a finding or measurement in some media at some point in time. The primary sources of information for the list include toxic substances:

- documented as having been detected in microlayer, water, sediment, finfish and/or shellfish tissue samples collected in the Chesapeake Bay basin through past and ongoing research and monitoring programs;
- documented as having been detected in atmospheric deposition as sampled within the Chesapeake Bay basin;
- documented as being released to surface waters, air, groundwater and or land within the Chesapeake Bay basin from industrial and municipal wastewaters, urban runoff shipping spills; and/or,
- documented as being applied as a pesticide product within the Chesapeake Bay basin.

This Comprehensive List serves two specific purposes:

- 1) It is the central listing of toxic substances around which the Chesapeake Bay Program's Toxics Data Base has been structured and organized.
- 2) It defines the "universe" of toxic substances from which future revisions and updates to the Chesapeake Bay Toxics of Concern List will be ranked and identified.

The Comprehensive List is being published as a document to meet other potential uses by the Chesapeake Bay Program agencies such as defining parameter lists for toxics monitoring programs.

Chemical and Reference Documentation

In order to ensure the accurate identification of the substances on the Chesapeake Bay Basin Comprehensive List of Toxic Substances, a unique Chemical Abstracts System (CAS) Registry Number has been assigned to each substance, where possible. This system is maintained by the American Chemical Society which reviews each new chemical submission. The CAS Registry Number is used by the Chesapeake Bay

Program as the primary toxic substance identification number in the Program's Toxics Data Base. Where CAS numbers could not be identified, the Bay Program assigned a number beginning with the prefix 'CAS'. When valid CAS numbers are identified, they will replace the CBP assigned number. Carbon, nitrogen and phosphorus compounds commonly reported as conventional pollutants (e.g. total carbon, nitrate, and phosphate) were excluded from this list.

The references used to document the substances on the Chesapeake Bay Basin Comprehensive List of Toxics Substances include computerized data sets and hard copy reports and published journal articles on Bay studies sponsored by federal and state agencies, and private institutions. Although priority was given to final published reports as source documents, some of the references include interim reports or literature citations referring to final draft documents. Each reference was assigned a unique Reference Number accompanied with a full citation (see List of References).

Comprehensive List Structure

The Chesapeake Bay Basin Comprehensive List of Toxic Substances, compiled as of April, 1992, is arranged alphabetically by the name assigned by the International Union of Pure and Applied Chemistry (IUPAC), and in some cases by its common or more publicly recognized name.

CAS Number - This nine-digit number is the Chemical Abstracts Service (CAS) Registry Number assigned to each substance. Key documents used to identify individual CAS numbers include:

- "The Merck Index" (Eleventh Edition),
- the U.S. EPA Office of Toxic Substances', "Toxic Substances Control Act (TSCA) PL 94-469 Candidate List of Chemical Substances",
- the U.S. EPA Office of Research and Development's, "Environmental Monitoring Methods Index" (EMMI) formerly referenced as the "List of Lists", and
- the "Farm Chemicals Handbook".

For the purposes of the relational storage of the Comprehensive List of Toxic Substances, and its relational storage within the Chesapeake Bay Program's Toxics Data Base, leading zeros have been added and hyphens have been excluded from the original CAS number format.

Chemical Name - To maximize the reader's familiarity with the substances on the Chesapeake Bay Basin Comprehensive List of Toxic Substances, efforts have been made to use the more commonly used, simple chemical name provided by IUPAC. In

the case of pesticides, it was decided to use the specific active ingredient rather than the more familiar trade name. A decision was made to limit the chemical name to 30 characters in length for this document, thus in some cases, only the partial name is printed.

Reference Number - This number refers to the specific document, report, journal article or Chesapeake Bay Program toxics data set in the List of References which contains the documentation for including the specific toxic substance on the Comprehensive List.

Update Schedule

The Chesapeake Bay Basin Comprehensive List of Toxics Substances and List of References will be updated periodically when additional published reports or articles, and additional toxics data are acquired and documented by the Chesapeake Bay Program Office. Each new source of data will be assigned a unique reference number for inclusion in the List of References. Each substance in a new reference will be compared to the comprehensive list of toxic substances and a separate list of synonyms. If a toxic substance is already on the list, then the new reference citation will be added to the existing comprehensive list's documentation for that substance. If the substance is determined to be a 'new' toxic substance, it will be added to the comprehensive list by its IUPAC or active ingredient name, along with its appropriate CAS number if available, and reference number. Any new toxics data received by the Chesapeake Bay Program will be documented, standardized and incorporated into the Program's toxics data base.

Recommended corrections or additions to, or requests for access to the computerized version of the Chesapeake Bay Basin Comprehensive List of Toxic Substances should be directed to:

Toxics Coordinator
U.S. Environmental Protection Agency
Chesapeake Bay Program Office
410 Severn Ave., Suite 109
Annapolis, MD 21403

Chesapeake Bay Basin Toxic Substances List

CAS Number	Chemical Name	Reference Number (Ref. No.)
CAS000001	1,1' OXYBISBENZENE (DIPHENYL E	79, 142
000630206	1,1,1,2-TETRACHLOROETHANE	215
000071556	1,1,1-TRICHLOROETHANE	51, 131, 190, 191, 196, 202, 207, 215, 243, 244
CAS000002	1,1,1-TRICHLOROETHYLENE	18
000079345	1,1,2,2-TETRACHLOROETHANE	51, 215
000079005	1,1,2-TRICHLOROETHANE	51, 215
000075343	1,1-DICHLOROETHANE	51, 215
000634662	1,2,3,4-TETRACHLOROBENZENE	187
000634902	1,2,3,5-TETRACHLOROBENZENE	187
000087616	1,2,3-TRICHLOROBENZENE	187, 215
000096184	1,2,3-TRICHLOROPROPANE	215
000634366	1,2,3-TRIMETHOXYBENZENE	215
000095943	1,2,4,5-TETRACHLOROBENZENE	187, 215
000120821	1,2,4-TRICHLOROBENZENE	187, 215, 241
000095636	1,2,4-TRIMETHYLBENZENE	190, 243
CAS000003	1,2,9-TRIMETHYL 1,2,3,4 TETRAH	79
000096128	1,2-DIBROMO-3-CHLOROPROPANE	35, 215
000106934	1,2-DIBROMOETHANE (EDB)	35, 42, 215
000095501	1,2-DICHLOROBENZENE	187, 190, 215, 241, 243, 244
000107062	1,2-DICHLOROETHANE	51, 190, 215, 243
000078875	1,2-DICHLOROPROPANE	51, 215
000122667	1,2-DIPHENYLHYDRAZINE	215
CAS000004	1,2-ETHANEDIOL, MONOACETATE	43
CAS000005	1,2-TRANS-DICHLOROETHYLENE	18
001464535	1,2:3,4-DIEPOXYBUTANE	215
000108703	1,3,5-TRICHLOROBENZENE	187
000291214	1,3,5-TRITHIANE	215
000108463	1,3-BENZENEDIOL (RESORCINOL)	215
000106990	1,3-BUTADIENE	190, 243
000096231	1,3-DICHLORO-2-PROPANOL	215
000541731	1,3-DICHLOROBENZENE	187, 215, 241, 244
000142289	1,3-DICHLOROPROPANE	215
000542756	1,3-DICHLOROPROPYLENE	42, 192
000106467	1,4-DICHLOROBENZENE	187, 215, 241, 244
000100254	1,4-DINITROBENZENE	215
000123911	1,4-DIOXANE	190, 215, 243
000130154	1,4-NAPHTHOQUINONE	215
002243621	1,5-NAPHTHALENEDIAMINE	215
CAS000369	1,6,7-TRIMETHYLNAPHTHALENE	242
001730376	1-METHYLFLUORENE	215
000090120	1-METHYLNAPHTHALENE	4, 77, 78, 81, 82, 99, 128, 198, 242
000832699	1-METHYLPHENANTHRENE	77, 99, 128, 215, 242
000605027	1-PHENYLNAPHTHALENE	80, 215
CAS000006	11H-BENZO[A]FLUORENE	43
CAS000007	17-PENTATRIACONTENE	43
CAS000008	2(5H)-FURANONE, 5,5-DIMETHYL	43

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CAS Number	Chemical Name	Reference Number (Ref. No.)
CAS000009	2,2',3,3',4,4',5,5'-HEXACHLORO	60
CAS000010	2,2',4,4'-TETRACHLOROBIPHENYL	60
002437798	2,2,4,4'-TETRACHLOROBIPHENYL	241
CAS000011	2,2,9 TRIMETHYL 1,2,3,4 TETRAH	79
CAS000012	2,3,4,5',6-PENTACHLOROBIPHENYL	60
000058902	2,3,4,6-TETRACHLOROPHENOL	198, 215
002245387	2,3,5-TRIMETHYLNAPHTHALENE	77, 99
000933755	2,3,6-TRICHLOROPHENOL	215
000243174	2,3-BENZOFUORENE	99, 215
000095158	2,3-BENZOTHIOPHENE	4, 215
CAS000013	2,3-BUTANEDIONE	43
000608275	2,3-DICHLOROANILINE	215
003209221	2,3-DICHLORONITROBENZENE	215
000093765	2,4,5-T	33, 35, 90, 215
000093721	2,4,5-TP - PHENOXY ACID	35, 215
016606023	2,4,5-TRICHLOROBIPHENYL	241
000095954	2,4,5-TRICHLOROPHENOL	215, 241
000137177	2,4,5-TRIMETHYLANILINE	215
000118796	2,4,6 TRIBROMOPHENOL	241
000088062	2,4,6-TRICHLOROPHENOL	198, 215, 241
000094757	2,4-D	18, 33, 35, 42, 90, 180, 190, 192, 206, 214, 215, 237
000094826	2,4-DB	42, 192, 237
000095807	2,4-DIAMINOTOLUENE	215
000120832	2,4-DICHLOROPHENOL	190, 198, 215, 241
000105679	2,4-DIMETHYLPHENOL	207, 215, 241
000051285	2,4-DINITROPHENOL	190, 207, 208, 215, 241
000121142	2,4-DINITROTOLUENE	180, 215, 241
000120365	2,4-DP (DICHLORPROP)	42
CAS000014	2,4-PENTANEDIOL, 2-METHYL	43
CAS000015	2,6-DI-TERT-BUTYLBENZOQUINONE	215
000099309	2,6-DICHLORO-4-NITROANILINE	215
000087650	2,6-DICHLOROPHENOL	215
000581420	2,6-DIMETHYLNAPHTHALENE	77, 99, 128, 242
000606202	2,6-DINITROTOLUENE	215, 241
000615225	2-(METHYLTHIO) BENZOTHAZOLE	215
000694804	2-BROMOCHLOROBENZENE	215
CAS000016	2-BUTANOL, 3-METHYL-, ACETATE	43
CAS000017	2-BUTANONE, 3-METHYL-	43
000126998	2-CHLORO-1,3-BUTADIENE	215
000110758	2-CHLOROETHYLVINYL ETHER	215
000091587	2-CHLORONAPHTHALENE	215, 241
000095578	2-CHLOROPHENOL	208, 215, 241
CAS000018	2-CYCLOHEXYL-CYCLOHEXANONE	71
CAS000019	2-CYCLOPROPEN-1-ONE, 2,3-DIPHE	43
000110805	2-ETHOXYETHANOL	190, 243
000939275	2-ETHYLNAPHTHALENE	78, 82, 198
CAS000367	2-FLUOROBIPHENYL	241

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CAS000368	2-FLUOROPHENOL	241
000591786	2-HEXANONE	215
CAS000020	2-HEXANONE, 3,3-DIMETHYL-	43
CAS000021	2-HEXANONE, 6-(ACETYLOXY)-	43
002027170	2-ISOPROPYLNAPHTHALENE	215
000109864	2-METHOXYETHANOL	190, 243
000534521	2-METHYL-4,6-DINITROPHENOL	208, 215, 241
CAS000022	2-METHYLBENZOTHAZOLE	215
000091576	2-METHYLNAPHTHALENE	4, 77, 78, 81, 82, 99, 128, 198, 215, 241, 242
002531842	2-METHYLPHENANTHRENE	99
000088744	2-NITROANILINE	215, 241
000088755	2-NITROPHENOL	190, 208, 215, 241, 243
000079469	2-NITROPROPANE	190
CAS000023	2-PENTANOL, 2,4-DIMETHYL	43
CAS000024	2-PENTENE, 5-(PENTYLOXY)-, (E)	43
000612942	2-PHENYLNAPHTHALENE	4, 78, 79, 80, 81, 82, 215
CAS000025	2-PROPYN-1-OL, ACETATE	43
000091941	3,3'-DICHLOROBENZIDINE	215, 241
000119904	3,3'-DIMETHOXYBENZIDINE	215
CAS000026	3,3,7 TRIMETHYL 1,2,3,4 TETRAH	79
CAS000027	3,3,7,12A TETRAMETHYL 1,2,3,4,	79
CAS000028	3,4,7 TRIMETHYL 1,2,3,4 TETRAH	79
001576676	3,6-DIMETHYLPHENANTHRENE	215
000108372	3-BROMOCHLOROBENZENE	215
000108429	3-CHLOROANILINE	241
000121733	3-CHLORONITROBENZENE	215
000107051	3-CHLOROPROPENE	190, 215, 243
CAS000029	3-HEPTANONE, 2,4-DIMETHYL	43
000056495	3-METHYLCHOLANTHRENE	215
CAS000030	3-METHYLPHENANTHRENE	99
000099092	3-NITROANILINE	215, 241
000080057	4,4'-ISOPROPYLIDENEDIPHENOL	190, 243
000101144	4,4'-METHYLENEBIS(2-CHLOROANIL	215
000101779	4,4'-METHYLENEDIANILINE	243
000092671	4-AMINOBIIPHENYL	215
000101553	4-BROMOPHENYL PHENYL ETHER	215, 241
000089634	4-CHLORO-2-NITROANILINE	215
000059507	4-CHLORO-3-METHYLPHENOL	215, 241
000106478	4-CHLOROANILINE	215
007005723	4-CHLOROPHENYL PHENYL ETHER	215, 241
000106445	4-METHYL PHENOL	131, 215, 241
000100016	4-NITROANILINE	215, 241
000092933	4-NITROBIIPHENYL	215
000100027	4-NITROPHENOL	190, 215, 241
CAS000032	4-PENTEN-2-ONE, 3-METHYL	43
000203645	4H-CYCLOPENTA[DEF]PHENANTHRENE	43, 78, 81, 82, 215
000095794	5-CHLORO-O-TOLUIDINE	215

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CAS Number	Chemical Name	Reference Number (Ref. No.)
CAS000034	5-HEXEN-2-ONE, 5-METHYL	43
000099558	5-NITRO-O-TOLUIDINE	215
CAS000035	6-PHENYLDODECANE	95
000057976	7,12-DIMETHYLBENZO [A] ANTHRACEN	215
CAS000036	9,10-DIPHENYLANTHRACENE	99
000883205	9-METHYLPHENANTHRENE	99
CAS000037	9H-FLUOREN-9-ONE	79, 135
000083329	ACENAPHTHENE	4, 18, 43, 54, 59, 60, 70, 77, 78, 81, 82, 99, 128, 187, 215, 241, 242
000208968	ACENAPHTHYLENE	4, 43, 54, 59, 60, 77, 78, 81, 82, 187, 207, 215, 241, 242
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000075070	ACETALDEHYDE	190, 243
000067641	ACETONE	131, 190, 205, 207, 215, 243
000075058	ACETONITRILE	190, 243
000098862	ACETOPHENONE	215
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050594666	ACIFLUORFEN	35, 42, 180, 192, 206, 214
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000079061	ACRYLAMIDE	190, 243
000079107	ACRYLIC ACID	190, 243
000107131	ACRYLONITRILE	190, 215, 243
015972608	ALACHLOR	18, 42, 54, 180, 192, 194, 206, 215, 237, 239
000116063	ALDICARB	35, 42, 192
000309002	ALDRIN	12, 13, 33, 42, 54, 59, 77, 90, 100, 102, 128, 129, 153, 187, 196, 199, 211, 212, 215, 225, 238, 241, 242, 244
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CAS000041	ALKYLATED CARBAZOLES	142
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CAS000043	ALKYLPHENOLS	142
000107186	ALLYL ALCOHOL	215
000608731	ALPHA-HEXACHLOROCYCLOHEXANE	198, 200
000134327	ALPHA-NAPHTHYLAMINE	215
000109068	ALPHA-PICOLINE	215
000098555	ALPHA-TERPINEOL	215
007429905	ALUMINUM	2, 3, 12, 19, 20, 21, 22, 23, 24, 25, 27, 34, 39, 43, 54, 55, 57, 61, 71, 73, 74, 77, 86, 90, 100, 103, 127, 150, 153, 155, 159, 175, 177, 178, 186, 190, 208, 215, 242, 243
CAS000044	ALUMINUM CHLORIDE	150
001344281	ALUMINUM OXIDE	190

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020859738	ALUMINUM PHOSPHIDE	42
010043013	ALUMINUM SULFATE	191
000834128	AMETRYN	35
000061825	AMITROLE	42
007664417	AMMONIA	4, 5, 19, 29, 31, 73, 86, 131, 135, 190, 191, 205, 213, 225, 243
CAS000350	AMMONIUM ETHYL CARBAMOYL PHOSP	42
006484522	AMMONIUM NITRATE	190, 191, 243
007783202	AMMONIUM SULFATE	190, 243
000062533	ANILINE	190, 215, 241, 243
000120127	ANTHRACENE	4, 6, 8, 18, 20, 21, 22, 23, 24, 25, 30, 39, 43, 54, 56, 59, 60, 70, 77, 78, 81, 82, 99, 128, 178, 187, 190, 215, 241, 242, 243, 244
000613127	ANTHRACENE, 2-METHYL-	43
CAS000045	ANTHRAQUINONE	78, 79, 81
007440360	ANTIMONY	34, 51, 75, 77, 100, 153, 175, 178, 187, 189, 190, 196, 198, 200, 207, 208, 234, 240, 242, 243
000140578	ARAMITE	215
007440382	ARSENIC	1, 4, 10, 11, 12, 19, 20, 21, 22, 23, 24, 25, 27, 32, 34, 36, 39, 43, 44, 46, 50, 51, 54, 55, 56, 59, 60, 61, 70, 74, 75, 76, 77, 90, 92, 94, 100, 103, 115, 122, 123, 130, 131, 139, 145, 148, 159, 161, 162, 163, 175, 177, 178, 185, 186, 187, 189, 190, 196, 198, 199, 200, 201, 203, 205, 207, 209, 211, 212, 213, 215, 217, 224, 234, 240, 241, 242, 243, 244
001332214	ASBESTOS (FRIABLE)	190, 243
001912249	ATRAZINE	4, 7, 18, 35, 37, 38, 39, 42, 54, 60, 97, 114, 120, 121, 136, 179, 180, 192, 194, 206, 214, 215, 237, 239
CAS000344	ATRAZINE, HYDROXY-	7
CAS000342	ATRAZINE, N DEETHYLATED	7
CAS000343	ATRAZINE, N-DEISOPROPYLATED	7
CAS000046	AZAARENES	142
002642719	AZINPHOS ETHYL	70, 215
000086500	AZINPHOS METHYL	42, 70, 192, 215, 237
023526025	BACILLUS THURINGIENSIS	42, 192

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022781233	BENDIOCARB	42
001861401	BENEFIN	42, 192, 237
017804352	BENOMYL	18, 42, 192, 237
000741582	BENSULIDE	35, 42, 180, 192, 206
025057890	BENTAZON	35, 42, 192, 214, 237
000082053	BENZANTHRONE	215
000071432	BENZENE	18, 51, 131, 190, 191, 196, 199, 202, 207, 215, 243, 244
CAS000047	BENZENE, 1, 1' - (1-BUTEN-3-YNE-1,	43
000108985	BENZENETHIOL	215
000092875	BENZIDINE	215, 241
CAS000048	BENZOCARBAZOLES	79, 142
CAS000049	BENZOFLUORANTHENES	4, 74, 78, 82
000065850	BENZOIC ACID	215, 241
CAS000050	BENZONAPHTHOTHIOPHENE	78, 82
CAS000051	BENZOQUINOLINES	142
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000094360	BENZOYL PEROXIDE	190, 243
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000238846	BENZO[A] FLUORENE	4, 6, 8, 20, 21, 22, 23, 24, 25, 30, 78, 80, 81, 82
000050328	BENZO[A] PYRENE	3, 4, 6, 8, 18, 20, 21, 22, 23, 24, 25, 27, 30, 43, 54, 59, 60, 70, 74, 77, 78, 80, 81, 82, 95, 99, 128, 178, 184, 187, 198, 199, 207, 215, 239, 241, 242, 244
000205992	BENZO[B] FLUORANTHENE	6, 8, 18, 20, 21, 22, 23, 24, 25, 30, 43, 54, 59, 60, 70, 77, 80, 178, 184, 187, 207, 215, 239, 241
000243846	BENZO[B] FLUORENE	4, 78, 80, 81, 82
CAS000055	BENZO[B] NAPHTHOL [1, 2-D] THIOPHE	43
CAS000056	BENZO[B] NAPHTHOL [2, 3-D] FURAN	43
CAS000057	BENZO[B] NAPHTHOTHIOPHENES	4
CAS000058	BENZO[B] NAPHTHO [2, 1-D] THIOPHEN	4, 78, 81, 82
CAS000059	BENZO[B] NAPHTHO [2, 3-D] THIOPHEN	4
000195197	BENZO[C] PHENANTHRENE	43, 78, 80, 81, 82
000192972	BENZO[E] PYRENE	4, 6, 8, 20, 21, 22, 23, 24, 25, 30, 43, 70, 74, 77, 78, 80, 81, 82, 95, 99, 128, 178, 198, 242
000203123	BENZO[GHI] FLUORANTHENE	18, 78, 82
000191242	BENZO[GHI] PERYLENE	4, 6, 8, 20, 21, 22, 23, 24, 25, 30, 43, 54, 60, 70, 77, 78, 80, 81, 82, 95, 99, 178, 184, 187, 207, 215, 241, 242

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CAS Number	Chemical Name	Reference Number (Ref. No.)
000205823	BENZO[J] FLUORANTHENE	43, 54, 80
000207089	BENZO[K] FLUORANTHENE	6, 8, 18, 20, 21, 22, 23, 24, 25, 30, 54, 59, 60, 70, 77, 80, 178, 187, 207, 215, 239, 241
000100516	BENZYL ALCOHOL	215, 241
000100447	BENZYL CHLORIDE	190, 191, 243
000056553	BENZ[A] ANTHRACENE	4, 6, 18, 20, 21, 22, 23, 24, 25, 30, 39, 43, 54, 56, 60, 70, 74, 77, 78, 80, 81, 82, 95, 99, 128, 178, 187, 198, 207, 215, 239, 241, 242
007440417	BERYLLIUM	19, 51, 90, 100, 135, 175, 178, 187, 196, 198, 199, 200, 207, 208
000091598	BETA-NAPHTHYLAMINE	215
000319846	BHC-ALPHA	4, 33, 36, 43, 44, 46, 50, 52, 53, 54, 59, 60, 100, 161, 178, 187, 209, 211, 212, 215, 239, 241
000319857	BHC-BETA	54, 59, 215, 241
000319868	BHC-DELTA	215, 241
000058899	BHC-GAMMA (LINDANE)	4, 12, 13, 17, 33, 36, 42, 43, 44, 46, 50, 52, 54, 59, 77, 90, 100, 102, 128, 130, 153, 178, 187, 196, 199, 200, 201, 209, 211, 212, 215, 237, 238, 239, 240, 241, 242
000092524	BIPHENYL	4, 6, 8, 20, 21, 22, 23, 24, 25, 30, 70, 74, 77, 78, 81, 82, 99, 142, 190, 198, 215, 242, 243
039638329	BIS (2-CHLOROISOPROPYL) ETHER	215, 241
000111911	BIS (2-CHLOROETHOXY) METHANE	215, 241
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000053190	DDD (O,P)	4, 33, 77, 102, 128, 238, 242
000072559	DDE (4,4')	1, 4, 12, 13, 17, 33, 39, 43, 44, 46, 50, 52, 53, 56, 59, 60, 71, 77, 82, 98, 102, 103, 104, 128, 142, 147, 153, 162, 163, 187, 203, 209, 211, 212, 215, 228, 232, 233, 238, 241, 242
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List of References

Ref. No. 001

Heavy metal, polychlorinated biphenyl and pesticide levels in shellfish and finfish from Maryland waters, 1976 - 1980.

Eisenberg, M. and J. Topping. 1981.

Office of Environmental Programs, Maryland Department of Health and Mental Hygiene, Baltimore, MD. 253 pp.

Ref. No. 002

Chesapeake Bay sediment trace elements.

Helz, G. R., S. A. Sinex, G. H. Setlock and A. Y. Cantillo. 1981. Final Report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Grant R805954.

Ref. No. 003

Trace elements in the sediments of Baltimore Harbor and Elizabeth River. Sinex, S. A., A. Y. Cantillo and G. R. Helz. 1981.

Final Report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Grant R805954.

Ref. No. 004

Impacts of contaminants on early life stages of striped bass. Progress report 1980 - 1983.

U.S. Department of Interior, Fish and Wildlife Service. 1984. U.S. Department of Interior, Fish and Wildlife Service, Columbia National Fisheries Research Laboratory, Columbia Missouri. 71 pp.

Ref. No. 005

Chesapeake Bay earth science study: interstitial water chemistry. Bricker, O.P., J.M. Hill, R.D. Conkwright 1983.

Final Report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Grant No. R805963.

Ref. No. 006

Toxic organic compounds in the Chesapeake Bay.

Bieri, R. H., M. K. Cueman, R. J. Huggett, W. MacIntyre, P. Shou, C. L. Smith, C. W. Su, and G. Ho. 1980.

Progress Report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Grant R806012.

Ref. No. 007

Uptake and photosynthetic inhibition of atrazine and its degradation products on four species of submerged aquatic plants.

Jones, T.W. and L. Winchell. 1982.

Univ. of MD - CEES Ref. No. HPEL 82-), Horn Point Envl. Lab and Salisbury State College, MD.

Ref. No. 008

Organic compounds in surface sediments and oyster tissues from the Chesapeake Bay.

Bieri, R.H., P. deFur, R.J. Huggett, W. MacIntyre, P. Shou, C.L. Smith and C. W. Su. 1981.

Final Report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Grant R806012010.

List of References

Ref. No. 009

Behavioral responses to two estuarine fish species subjected to bis(tri-n-butyltin)oxide.
L.W. Hall, Jr., A.E. Pinkney, S. Zeger, D.T. Burton and M.J. Lenkevich. 1984.
Water Res. Bull. Vol. 20, No. 2.

Ref. No. 010

Fate, transport, and transformation of toxic substances: significance of suspended sediment and fluid mud.
Nichols, M., R. Harris, G. Thompson. 1982.
Final report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Grant R806002-01-01.

Ref. No. 011

Chesapeake Bay: profile of environmental change.
U.S. EPA. 1983.
U.S. EPA Chesapeake Bay Program, Annapolis, MD.

Ref. No. 012

Results of initial sampling of heavy metals and pesticides found in stream bottom sediments in the Susquehanna River basin.
J.R. Hollowell. 1975.
Susquehanna River Basin Commission. Harrisburg, PA. 12pp.

Ref. No. 013

Susquehanna River bottom sediments, part III: surficial heavy metals and organic pollutants at New York and Pennsylvania sites, 1976-78; related studies on sediment genesis and availability of heavy metals. B. McDuffie, R.D. Tiberio, F. Emmi. 1979.
Final report on contracts to the Susquehanna River Basin Commission under Rf/SUNY No. 240-6029C (7/1/76 to 11/30/77) and 240-6029D (10/1/77 to 10/31/78) 62 pp.

Ref. No. 014

Organotin concentrations in the southern Chesapeake Bay.
Huggett, R.J., Unger, M.A., and D.J. Westbrook. 1986.
In: Proceedings of the Oceans '86 Conference, September, Washington, D.C. p. 1262-12.

Ref. No. 015

Di- and tributyltin species in marine and estuarine water. Interlaboratory comparison of two ultra trace analytical methods employing hydride generation and atomic absorption or flame photometric detection. Valkirs, A.O., Seligman, P.J., G.J. Brinckman, F.E. Matthias, C.L., and Bellama, J.M. 1986.

Ref. No. 016

Final technical report on the sampling survey of tributyltin and dibutyltin concentrations at selected harbors in Chesapeake Bay. CBP/TRS 14.87. Batiuk, R. 1987.
U.S. EPA Chesapeake Bay Program, Annapolis, MD.

List of References

Ref. No. 017

Pesticide residue reports, 1976-1985.
Virginia State Health Department. 1985.
Virginia State Health Dept. Bureau of Shellfish, Richmond, VA.

Ref. No. 018

Chesapeake Bay: a framework for action.
U.S. EPA. 1983.
U.S. EPA, Region 3, Philadelphia, PA.

Ref. No. 019

Water quality of three major tributaries to the Chesapeake Bay, the Susquehanna, Potomac, and James Rivers, January 1979 - April 1981. Lang, D. J. 1982.
U.S. Geological Survey. Towson, MD.

Ref. No. 020

Hart Miller Island water quality data report - years 1972 - 1978. Allison, J. T. and W. Butler. 1981.
Maryland Department of Natural Resources, Water Resources Administration. Annapolis, MD
14 pp. with 3 Appendices.

Ref. No. 021

First interpretive report: August 1981 - August 1982 - assessment of the environmental impacts of construction and operation of the Hart Miller Islands containment facility.
Chesapeake Research Consortium, Inc. 1982.
CRC Publication No. 110. prepared for the Maryland Department of Natural Resources, Water Resources Administration under Maryland Port Administration Contract 12339-S.

Ref. No. 022

Data report: 1981-1982 - assessment of the environmental impacts of construction and operation of the Hart Miller Islands containment facility. Chesapeake Research Consortium, Inc. 1982.
CRC Publication No. 109, Prepared for the Maryland Department of Natural Resources, Water Resources Administration under the Maryland Port Administration Contract 12339-S.

Ref. No. 023

Special report No. 1 - historical summary of environmental data for the area of Hart and Miller Islands containment facility.
Chesapeake Research Consortium, Inc. 1982.
CRC Publication No. 108. Contract 12339-S.

Ref. No. 024

Second interpretive report: August 1982-August 1983 - assessment of the environmental impacts of construction and operation of the Hart and Miller Islands containment facility.
Chesapeake Research Consortium, Inc. 1984.
CRC Publication No. 114. Prepared for the Maryland Department of Natural Resources, Water Resources Administration under Maryland Port Administration Contract 12477-S.

List of References

Ref. No. 025

Data report: 1982 - 1983 - assessment of the environmental impacts of construction and operation of the Hart Miller Islands containment facility. Chesapeake Research Consortium, Inc. 1984.

CRC Publication No. 115. Prepared for the Maryland Department of Natural Resources, Water Resources Administration under Maryland Port Administration Contract 12477-S.

Ref. No. 026

Comparison of trace metal data in mussels and oysters from a mussel watch programme of the 1970s with those from a 1980s programme.

G.G. Lauenstein, A. Robertson, and T.P. O'Connor. 1990.

Marine Poll. Bull. Vol. 21, No. 9 pp. 440-447.

Ref. No. 027

Chesapeake Bay Program Technical Studies: A Synthesis.

U.S. EPA. 1982.

U.S. EPA Chesapeake Bay Program, Annapolis, MD. NTIS Number PB84-111 202.

Ref. No. 028

The characterization of the Chesapeake Bay: a systematic analysis of toxic trace elements.

Kingston, H.M., R.R. Greenberg, E.S. Beary, B.R. Hardas, J.R. Moody, T.C. Rains, and W.S. Liggett. 1983.

National Bureau of Standards, Center for Analytical Chemistry. Washington, D.C. 218 pp.

Ref. No. 029

Chesapeake Bay basin model final report.

Hartigan, J.P., E. Southerland, H. Bonucelli, A. Cavacas, J. Friedman, T. Quaserbarth, K. Roffe, T. Scott, and J. White. 1983.

Northern Virginia Planning District Commission, Annandale, VA.

Ref. No. 030

Toxic organic compounds in surface sediments from the Elizabeth and Patapsco Rivers and Estuaries.

Bieri, R.H., C. Hein, R.J. Huggett, P. Shou, H. Sloan, C.L. Smith and C. W. Su. 1982.

Final Report to the U.S. EPA, Chesapeake Bay Program, Annapolis, MD. Grant R806012.

Ref. No. 031

Chesapeake Bay Earth Science Study: Sediment and Pore Water Chemistry. Tyree, S. Y., M.A.O. Bynum, P. Martin, D. Sander, G. Sweeney, J. Stouffer, S.Pugh. 1981.

U.S. EPA, Chesapeake Bay Program, Annapolis, MD. Grant R805966.

Ref. No. 032

Elutriate test of Baltimore Harbor sediments: a data report. Ecological Analysts, Inc. 1983.

Prepared for the Maryland Port Administration, Baltimore, MD.

List of References

Ref. No. 033

PCB and chlorinated pesticide contamination in U.S. fish and shellfish: a historical assessment report.

Mearns, A.J., M.B. Matta, D. Simecek-Beatty, M.F. Buchman, G. Shigenaka, and W.A. Wert. 1988.

NOAA Technical Memorandum NOA OMA 39.

Ref. No. 034

A summary of selected data on chemical contaminants in tissues collected during 1984, 1985, and 1986.

December, 1987.

NOAA NOS National Status and Trends Program for Marine Env. Quality Progress Report.

NOAA Technical Memorandum NOS OMA 38.

Ref. No. 035

Pesticide use in the Chesapeake Bay basin.

Roeser, L. S. 1988. CBP/TRS 23/88.

U.S. EPA Chesapeake Bay Program, Annapolis, MD.

Ref. No. 036

Inner Harbor crab study: heavy metal and chlorinated hydrocarbon levels in *Callinectes sapidus* in the Chesapeake Bay.

Garreis, M.J., and D. Murphy. 1986.

Office of Environmental Programs, Dept. of Health and Mental Hygiene, Tech. Report 22.

Ref. No. 037

Response of submerged vascular plants to herbicide stress in estuarine microcosms.

W. M. Kemp, J.J. Cunningham, J.C. Stevenson, J.C. Means and W.R. Boynton. 1982.

University of Maryland-CEES, Cambridge, MD.

Ref. No. 038

Concentrations of the herbicides atrazine and linuron in agricultural drainage, tributary estuaries and littoral zones of upper Chesapeake Bay. W.R. Boynton, J.C. Means, J.C. Stevenson, W.M. Kemp and R. Twilley. 1983. University of Maryland-CEES, Cambridge, MD.

Ref. No. 039

Contaminant problems and management of living resources: Chesapeake Bay. (ed.s) S.K. Majumdar, L.W. Hall, Jr., H.M. Austin. 1987.

The Pennsylvania Academy of Science.

Ref. No. 040

Utilizing metal concentration relationships in the eastern oyster (*Crassostrea virginica*) to detect heavy metal pollution.

Huggett, R. J., M. E. Bender, and H. D. Slone. 1973.

Water Res. Vol. 7: 451 - 460.

List of References

Ref. No. 041

Distribution of copper and zinc in oysters and sediments from three coastal plain estuaries. Huggett, R. J., F. A. Cross, and M. E. Bender. 1975.
Proceedings of a Symposium on Mineral Cycling in Southeastern Ecosystems. Augusta, GA. U.S. Energy Research and Development Administration, ERDA Symposium Series, CONF-740513.

Ref. No. 042

Maryland pesticide statistics for 1988.
Maryland Department of Agriculture. 1990.
Maryland Department of Agriculture, MDA 227-90, Annapolis, Maryland.

Ref. No. 043

A pilot study for ambient toxicity testing in Chesapeake Bay. Volume I, year 1 report. L.W. Hall, Jr., M.C. Ziegenfuss, S.A. Fischer, R.W. Alden, III, E. Deaver, J. Gooch and N. Debert-Hastings. 1991.
U.S. EPA - Chesapeake Bay Program. CBP/TRS 64/91.

Ref. No. 044

Basic water quality monitoring program report of fish tissue analysis 1980. Allison, J.T. and W.L. Butler. 1982.
Maryland Department of Health and Mental Hygiene. Baltimore, MD. 12 pp.

Ref. No. 045

Fate and effects of kepone in the James River.
Bender, M. E. and R. J. Huggett. 1984.
E. Hodgson (ed.), Rev. In: Environmental Toxicology I. New York: Elsevier Scientific Publication. pp. 5-50.

Ref. No. 046

Basic water monitoring program report of fish tissue analysis, 1981 and 1982.
Butler, W.L., and J.T. Allison. 1984.
Maryland Department of Health and Mental Hygiene. Baltimore, MD. 106 pp.

Ref. No. 047

Polychlorinated biphenyls in fish and shellfish of the Chesapeake Bay. Eisenberg, M., R. Mallman, and H.S. Tubbiash. 1980.
Mar. Fish. Rev. 42(2): 21-25.

Ref. No. 048

Gulf and Atlantic Survey (GAS 1): Chesapeake Bay to Port Isabella, Texas. Final Report. ERCO, Company. 1981.
ERCO, Company. 56 pp.

List of References

Ref. No. 049

Intensive survey for chlordane contamination shellfish in Lake Roland, Back River, and Patapsco River.

Garreis, M.J., and D. Murphy. 1986.

Division of Technical Analyses, Water Management Administration, Office of Environmental Programs, Department of Health & Mental Hygiene, Baltimore, MD. 23 pp.

Ref. No. 050

Basic water monitoring program fish tissue analysis, 1983 and 1984. Murphy, D.L. 1986.

Tech. Report 44. Office of Environmental Programs, Department of Health and Mental Hygiene, Baltimore, MD. 65 pp.

Ref. No. 051

Estimate of the occurrence and distribution of toxicants in streambed sediments of the Susquehanna River system.

Ott, Authur N., C.S. Takita, S.W. Bollinger. 1989.

Susquehanna River Basin Commission.

Ref. No. 052

National Pesticide Monitoring Program: Residues of organochlorine, chemicals in freshwater fish, 1980-81.

Schmitt, C.J., J.L. Zajiik, and M.A. Ribick. 1985.

Arch. Environ. Contam. Toxicol. 14:225-260.

Ref. No. 053

National Pesticide Monitoring Program: Organochlorine residues in freshwater fish, 1976-1979.

Schmitt, C. J., M.A. Ribick, J.L. Ludke and T.W. May. 1983. Resource Publication 152. U.S. Dept. of the Interior, Fish and Wildlife Service, Washington, D.C. 62 pp.

Ref. No. 054

Trace Metal and Toxic Organic Concentrations in Striped Bass and White Perch Larvae, Freshwater Clams and Surficial Sediments from Northern Chesapeake Bay Tributaries.

Wright, D.A. 1987.

A Report to the Maryland Department of Natural Resources, Tidewater Administration. Annapolis, MD.

Ref. No. 055

In situ striped bass (*Morone saxatilis*) contaminant and water quality studies in Potomac River.

Hall, Jr., L.W., W.S. Hall, S.J. Bushong and R.L. Herman. 1987. Aquatic Toxicology, 10(1987) 73-99.

Ref. No. 056

Effects of organic and inorganic chemical contaminants on

fertilization, hatching success and prolarval survival of striped bass. Hall, Jr., L.W., L.O. Horseman, and S. Zeger. 1984.

Arch. Environ. Contam. Toxicol. 13,723 - 729 (1984).

List of References

Ref. No. 057

Chesapeake Bay Sediment Trace Elements.

Helz, G.R., S.A. Sinex, G.H. Setlock and A.Y. Comtillo. 1983. U.S. EPA. EPA-600/3-83-01.

Ref. No. 058

Dose-related toxicity of copper and cadmium in striped bass larvae from the Chesapeake Bay: field considerations.

Wright, D.A. 1988.

Water Science & Technology.

Ref. No. 059

Chesapeake Bay water quality monitoring program, toxic chemicals and Bioaccumulation Component.

Wright, D.A. and G.D. Foster and D. Striegel-Rofengrant. 1985. Report to the Maryland Department of Health and Mental Hygiene, Office of Environmental Programs, November, 1985. Univ. of MD Ref. No. [UMCEES]CBL 85-119.

Ref. No. 060

Chesapeake Bay water quality monitoring program, toxic chemicals and bioaccumulation component.

Wright, D.A., G.D. Foster and S.I. Whitlow. 1986.

Report to the Maryland Department of Health and Mental Hygiene, Office of Environmental Programs. 1985. Univ. of MD Ref. No. [UMCEES]CBL 86-64. 235pp.

Ref. No. 061

Condition indices for striped bass larvae from the northern Chesapeake Bay with reference to food availability and toxicants.

Wright, D.A., E.M. Setzler-Hamilton, F.D. Martin, C.V. Millsaps, S.I. Whitlow. 1986.

University of Maryland, Center for Environmental and Estuarine Studies, Chesapeake Biological Laboratory, Solomons, MD. Ref. No. [UMCEES]CBL 86-82. 235 pp.

Ref. No. 062

The effect of sea surface microlayer enrichment on TBT transport.

Gucinski, H. 1986.

Conference Proceedings, 1986 Oceans Meeting, Washington, DC.

Ref. No. 063

Acute and sublethal effects of organotin compounds on aquatic biota: an interpretive literature evaluation.

Hall, L.W., Jr., and A. E. Pinkney. 1985.

CRC Critical Reviews in Toxicol. 14:159-209.

Ref. No. 064

Chesapeake Bay Program: Findings and Recommendations.

U.S. EPA. 1983.

U.S. EPA Region 3, Philadelphia, PA.

List of References

Ref. No. 065

Monitoring Organotin Concentrations in Maryland waters of Chesapeake Bay. Hall, L.W., Jr., M.J. Lenkevich, W.S. Hall, A.E. Pinkney and S.J. Bushong. 1986.
The Johns Hopkins University, Applied Physics Laboratory, Aquatic Ecology Section, Shady Side, MD. 20764

Ref. No. 066

Baseline Inventory of Butyltins in Navy Harbors and Adjacent Waters Data Report. Grovhoug, J.G., and P.F. Seligman. 1986.
National Ocean Systems Center, Environmental Sciences Division, for the Office of Chief of Naval Research (Code 126).

Ref. No. 067

Tributyltin in whole water and sediment collected from marinas and the Hampton Roads area in the southern Chesapeake Bay.
Westbrook, D.J., E.J. Travelstead, F.A. Espourteille, C.D. Rice, R.J. Huggett. 1986.
Final Report to the John Hopkins University. Contract No. 507242-0.

Ref. No. 068

Project 7: TBT in marina areas and freshwater effluent.
Huggett, R.J. and D. J. Westbrook. 1987.
Annual Report FY 1986/87 for the Cooperative State Agency Program. Virginia Institute of Marine Sciences, Gloucester Point, VA.

Ref. No. 069

Project 2: TBT monitoring in marinas.
Huggett, R.J., D.A. Evans, D.J. Westbrook and E.J. Travelstead. 1988. Annual Report FY 1987 - 1988 for the Cooperative State Agency Program. Virginia Institute of Marine Sciences, Gloucester Point, VA.

Ref. No. 070

Review of technical literature and characterization of aquatic surface microlayer samples.
Hardy, J.T., Gucinski, Herman. 1988.
Final Report to the U.S. EPA Chesapeake Bay Program. US EPA CBP/TRS 20/88. Contract No. 68-03-3319. Work Assignment 1-82. Annapolis, MD.

Ref. No. 071

Environmental contaminant studies: a summary - Annapolis and Gloucester Field Offices, 1984-1988.
U.S. Fish and Wildlife Service. 1989.
U.S. Fish and Wildlife Service, Environmental Contaminants Branch, Annapolis Field Office. AFO-C89-3.

List of References

Ref. No. 072

Vertical distribution of estuarine phytoplankton in the surface microlayer and at one meter fluctuations in abundance caused by surface adsorption of mononuclear films.

Gibson, Victoria Roy. 1971.

M.A. Thesis. Virginia Institute of Marine Sciences and University of Virginia, Gloucester Point, VA.

Ref. No. 073

Survival of striped bass larvae and yearlings in relation to contaminants and water quality in the upper Chesapeake Bay.

Hall, L.W., Jr., A.E. Pinkney, R.L. Herman, and S.E. Finger. 1987b. Arch. Environ. Contam. Toxicol. 16(4):391-400.

Ref. No. 074

Aquatic surface microlayer contamination in Chesapeake Bay. Hardy, J.T., E.A. Crecelius, L.D. Antrim, P.D. Boehm, W.G. Steinhauer, and V.L. Broadhurst. 1987.

Contract Report to the Maryland Department of Natural Resources, Energy Administration, Power Plant Research Program, Annapolis, MD. 39 pp.

Ref. No. 075

Aerial flux of particulate hydrocarbons to the Chesapeake Bay estuary. Webber, D.B. 1983. Mar. Pollut. Bull. 14:416-421.

Ref. No. 076

Metal Inventory and Fate of Suspended Sediments in Chesapeake Bay. Huggett, R.J., M.E. Bender, and M.A. Unger. 1982.

Virginia Institute of Marine Sciences, Special Report No. 106.

Ref. No. 077

Phase 2 final report on national status and trends mussel watch program: collection of bivalve mollusks and surficial sediments from coastal U.S. Atlantic and Pacific locations and analyses for organic chemicals and toxic trace elements.

Battelle Ocean Sciences, et al. 1988.

Prepared for U.S. Dept. of Commerce, NOAA, Ocean Assessments Division, Rockville, MD.

Ref. No. 078

Chesapeake Bay mainstem organic monitoring.

deFur, Paul O. 1985.

Report to the State Water Control Board, Richmond, VA.

Ref. No. 079

Organic compounds in sediments from Chesapeake Bay and its Virginia tributaries - 1986. deFur, Paul. 1986.

Report to Virginia State Water Control Board, Richmond, VA.

List of References

Ref. No. 080

Polynuclear hydrocarbons in sediments and clams in the vicinity of a refinery outfall.
deFur, P.O., M.E. Bender, C.W. Su, R.J. Huggett, H.D. Slone and C.L. Smith. 1986.
Virginia Institute of Marine Sciences. Report to the American Petroleum Institute.

Ref. No. 081

Sediment organic chemistry - tributary monitoring.
deFur, Paul O. 1985.
Final Report to the Virginia State Water Control Board, Richmond, VA.

Ref. No. 082

A summary and analysis of metals and pesticide concentrations in shellfish and fish tissues
from Virginia estuarine waters.
E. Gilinsky and J.V. Roland. 1983.
State Water Control Board. Richmond, VA.

Ref. No. 083

Regional Geochemistry of Trace elements in Chesapeake Bay sediments. Sinex, S.A., G. R.
Helz.
Environ. Geol., pp 1-9.

Ref. No. 084

Summary of kepone study results: 1982-1985.
G. T. Walton. 1987.
Virginia Water Control Board. Basic Data Bulletin 73. Ref. No. 085
Search for linuron residues in tributaries of the Chesapeake Bay. Edward W. Zahnow and J.D.
Riggelman. 1980.
Agricultural and food chemistry, 1980, 28, 974.

Ref. No. 086

A pollution history of the Chesapeake Bay.
Goldberg, E. D., V. Hodge, M. Koide, J. Griffin, E. Gamble, O. P. Bricker, G. Matisoff, G.R.
Holdren, Jr., and R. Braun. 1978.
Geochim. Cosmochim. Acta, V. 42: 1413-1425.

Ref. No. 087

Accuracy of acid extraction methods for trace metals in sediments. Sinex, S. A., A. Y.
Cantillo, and G. R. Helz. 1980.
Anal. Chem., V. 52: 2342-2346.

Ref. No. 088

Comparison of estuarine species sensitivities to three toxicants. Morris H. Roberts, J.E.
Warinner, Chu-Fa Tsai, D. Wright and L.E. Cronin. 1982.
Arch. Environm. Contam. Toxicol. 11, 681-692. (1982).

List of References

Ref. No. 089

Distribution of metals in Baltimore Harbor sediments.

Villa, Jr., O., and P. G. Johnson. 1974.

Annapolis Field Office, Technical Report 59. (EPA-903/9-74-012). 71pp.

Ref. No. 090

Water quality monitoring of three major tributaries to the Chesapeake Bay -interim data report.

Lang, D. J. and D. Grason. 1980.

Prepared by the U.S. Geol. Survey, Water-Resources Investigations 80-78, and the U.S. EPA Chesapeake Bay Program.

Ref. No. 091

Heavy metals - an inventory of existing conditions.

Bender, M. E., R. J. Huggett, and H. D. Sloane. 1972.

J. Wash. Acad. Sci., Vol. 62, No. 2, pp. 144-153.

Ref. No. 092

Trace metal residues in finfish from Maryland waters, 1978-1979. Max Eisenberg and J.J. Topping. 1986.

J. Environ. Sci. Health, B21(1), 87-102 (1986).

Ref. No. 093

Mercury in sediments from three Virginia estuaries.

Huggett, R. J., M. E. Bender, and H. D. Slone. 1971a.

Ches. Sci., 12: 280-282.

Ref. No. 094

Background and problem assessment report for the Elizabeth River. State Water Control Board. 1984.

Virginia State Water Control Board, Hampton Roads Water Quality Agency and Southeastern Virginia Planning District Commission.

Ref. No. 095

The present state of organic xenobiotics in the Chesapeake Bay -a synthesis paper.

Huggett, R. J., R.H. Bieri, P. DeFur, W. MacIntyre, P. Shou, C.L. Smith & C.Su. 1981.

Virginia Institute of Marine Science and School of Marine Science. Gloucester Point, VA.

Ref. No. 096

Current status of research on the biological effects of pesticides on the Chesapeake Bay.

Munson, T. O. and R. J. Huggett. 1972.

Chesapeake Science, Vol. 13., S154 - S156, Supplement, Biota of the Chesapeake Bay.

Ref. No. 097

Concentrations of the herbicides atrazine and linuron in agricultural drainage, tributary estuaries and littoral zones of upper Chesapeake Bay.

W.R. Boynton, J.C. Means, J.C. Stevenson, W.M. Kemp, R. Twilley. 1983. University of Maryland, Center for Estuarine and Environmental Studies.

List of References

Ref. No. 098

Upper Bay survey, final report to the Maryland Dept. of Natural Resources. Munson, T. O. 1975.

(Ed.s): T. O. Munson, D. K. Ela, and C. Rutledge.

Chapter 6. Westinghouse Oceanic Division, Annapolis, MD.

Ref. No. 099

Influence of marinas on hydrocarbons in sediments of two estuarine creeks. Voudrias, Evangelos Alexandros. 1980.

Thesis. Virginia Institute of Marine Sciences. College of William and Mary. Williamsburg, VA.

Ref. No. 100

Status and trends of toxic water quality parameters in the Potomac River basin.

Friebele, E.S., H.C. Haywood, T. Manuefides, H. Cardwell,
and R. C. Steiner. 1988.

Interstate Commission on the Potomac River Basin Report 88-3.

Ref. No. 101

Tributyltin environmental studies in Chesapeake Bay.

Hall, L.W., Jr. 1988.

Mar. Poll. Bull., 19, 431(1988).

Ref. No. 102

Toxic substances in submerged aquatic vegetation beds.

J.C. Cornwell and J.C. Stevenson. 1990.

Maryland Department of Natural Resources, Chesapeake Bay Research and Monitoring Division. CBRM 90-H1-1.

Ref. No. 103

Distribution of trace metals in the sediments and biota of Chesapeake Bay. Sinex, S.A. and D. A. Wright. 1988.

Mar. Poll. Bull., 19, 425(1988).

Ref. No. 104

Organochlorine residues in estuarine mollusks, 1965-1972. National Pesticide Monitoring Program.

Butler, 1973.

Pest. Mon. J. 6(4): 238-362.

Ref. No. 105

Residues of pesticides and PCBs in estuarine fish.

National Pesticide Monitoring Program.

Butler, P.A. and R.L. Schutzmann. 1978.

Pest. Mon. J. 12(2): 51-59.

List of References

Ref. No. 106

Pesticide Residues in Estuarine Mollusks, 1977 versus 1972. National Pesticide Monitoring Program.

Butler, P.A., C.D. Kennedy and R.L. Schutzmann. 1978.

Pest. Mon. J. 12(3): 99-101.

Ref. No. 107

Copper and zinc concentrations in oysters from selected locations on the Chesapeake Bay, summary report 1974 - 1977.

Phelps, H. 1977.

Prepared for NASA by Univ. of D.C., Grant NGR-09-050-019.

Ref. No. 108

Greening and copper accumulation in the American oyster, *Crassostrea virginica*, in the vicinity of steam electric generating stations. Roosenburg, W. H. 1969.

Chesapeake Sci., 10 : 241-252.

Ref. No. 109

Effects of sewage effluents and associated disinfection technologies on estuarine and freshwater macrobenthos: final report.

Shaughnessy, A.T., and A.F. Holland. 1985.

Prepared for the Office of Environmental Programs, MD Dept. of Health and Mental Hygiene by Martin Marietta Environmental Systems, Colombia, MD.

Ref. No. 110

Silver-110, Cobalt-58, Zinc-65 concentrations in the American oyster, *Crassostrea virginica* (Gmelin), near the Calvert Cliffs nuclear power plant.

McLean, R.I., J.K. Summers, K.A. Rose, and S.L. Domotor. 1987. MD Power Plant Research Program, Ref. No. PPRP-R-7. Annapolis, MD.

Ref. No. 111

Sublethal effects of Baltimore Harbor water on the white perch, *Morone americana* and the hogchoker, *Trinectes maculatus*.

Morgan, R. P., II, R. F. Fleming, V. J. Rasin, Jr. and D. R. Heinle. 1973.

Chesapeake Sci., Vol. 14(1): 17 - 27.

Ref. No. 112

Environmental radionuclide concentrations in the vicinity of the Calvert Cliffs nuclear power plant: 1981-1984.

Domotor, S.L., and R.I. McLean. 1987.

MD Power Plant Research Program. Ref. No. PPRP-R-8. Annapolis, MD.

Ref. No. 113

Chlorine and the Chesapeake Bay.

Breisch, L.L., D.A. Wright, and D. M. Powell. 1984.

Univ. of Maryland Sea Grant Program. UM-SG-TS-84-02. College Park, MD.

List of References

Ref. No. 114

Patterns of ecological and physiological response and recovery of the submerged macrophyte, *Potamogeton perfoliatus*, exposed to atrazine stress in estuarine microcosms.

J.J. Cunningham, W. M. Kemp, J.C. Stevenson and M.R. Lewis. 1981. University of Maryland-CEES, Cambridge, MD.

Ref. No. 115

Acute and chronic effects of waterborne arsenic and selenium on the early life stages of striped bass (*Morone saxatilis*).

Ronald J. Klauda. 1986.

The Johns Hopkins University Applied Physics Laboratory, Environmental Sciences Group for the Maryland Power Plant Siting Program. PPRP-98.

Ref. No. 116

Long-term benthic monitoring and assessment program for the Maryland portion of Chesapeake Bay: interpretive report.

Holland, A.F., A.T. Shaughnessy, L.C. Scott, V.A. Dickens, J. Gerritsen, J.A. Ranasinghe. 1988.

Prepared for the Maryland Department of Natural Resources, Power Plant Research Program. Annapolis, MD.

Ref. No. 117

The interaction of iron and phosphate, carbonate and sulfide in Chesapeake Bay interstitial waters: a thermodynamic interpretation.

Troup, B. N. 1974.

Ph.D. Dissertation, The Johns Hopkins University, Baltimore, MD.

Ref. No. 118

Concentrations of Cr, Ag, Mo, Ni, Co and Mn in suspended material in streams.

Turekian, K. K. and Scott, M. R. 1967.

Environ. Sci. Technol. (1):940-942.

Ref. No. 119

Mercury distribution in the Chesapeake Bay.

Brinckman, F. E., K. L. Jewett, W. R. Blair, W. P. Iverson, and C. Huey. 1973.

National Bureau of Standards. NBS Guest Worker.

Ref. No. 120

Degradation of atrazine in estuarine water/sediment systems and soils. T.W. Jones, W.M. Kemp, J.C. Stevenson and J.C. Means. 1982. University of Maryland-CEES Contribution No. 1341 supported by the U.S. EPA-CBP grant #R 805932-01-1, Cambridge, MD.

Ref. No. 121

Atrazine uptake, phytotoxicity, release, and short-term recovery for the submerged aquatic plant, *Potamogeton perfoliatus*.

T.W. Jones, W.M. Kemp, P.S. Estes and J.C. Stevenson. 1982. University of Maryland-CEES, Cambridge, MD.

List of References

Ref. No. 122

Heavy metal inventory of suspended sediment and fluid mud in Chesapeake Bay.

Harris, R., M. Nichols, and G. Thompson. 1980.

VIMS, Special Scientific Report 99, Virginia Institute of Marine Sciences. Gloucester Point, VA. 113 pp.

Ref. No. 123

Water, metals and suspended material in Chesapeake Bay.

Nichols, M., W. Cronin, and R. Harris. 1979.

VIMS, Special Scientific Report 105, Virginia Institute of Marine Sciences. Gloucester Point, VA. 1979.

Ref. No. 124

Tracing kepone contamination in James estuary sediments.

Nichols, M. 1981.

International Council for exploration of the sea, workshop proceedings, No. 8, 818 pp.

Ref. No. 125

Metals in Baltimore Harbor and upper Chesapeake Bay and their accumulation by oysters.

Cronin, L. E., D. W. Pritchard, J. R. Schubel, and J. A. Sherk, editors. 1974.

Joint report by the Chesapeake Bay Institute and Chesapeake Biological Laboratory. 72 pp.

Ref. No. 126

An evaluation of Chester River oyster mortality.

J.J. Cooney, D. Martin, W.H. Roosenberg, D.H. Freeman and C.R. Bostater, Jr.

Maryland Department of Natural Resources and the U.S. EPA-Chesapeake Bay Program. Grant No. 805976.

Ref. No. 127

Chemical quality of water and trace elements in the Patuxent River Basin. Heidel, S. G. and W. W. Frenier. 1965.

Maryland Geological Survey, Report of Investigations No. 1, 40 pp.

Ref. No. 128

National status and trends program for marine environmental quality progress report: a summary of data on individual organic contaminants in sediments collected during 1984, 1985, 1986, and 1987.

U.S. Department of Commerce. National Oceanic and Atmospheric Administration. 1989.

U.S. Department of Commerce. National Oceanic and Atmospheric Administration. NOAA Technical Memorandum NOS OMA 47.

Ref. No. 129

Results of experiments on extraction of contaminants of bay and harbor sediments.

Sloan, W. 1972.

Internal Memo. of Transmittal, State of MD., MD. Environ. Serv.

List of References

Ref. No. 130

National status and trends program for marine environmental quality first three years (1986-1988) of the mussel watch project.
U.S. Department of Commerce. National Oceanic and Atmospheric Administration. 1989.
U.S. Department of Commerce. National Oceanic and Atmospheric Administration. NOAA Technical Memorandum NOS OMA 49.

Ref. No. 131

A biological assessment of the Holby Chemical Company superfund site New Castle County, Delaware.
U.S. Fish and Wildlife Service, Environmental Contaminants Branch. 1990.
U.S. Environmental Protection Agency, Region 3. Philadelphia, PA. Interagency Agreement No. DW 14933552-01-2.

Ref. No. 132

Separation and concentration of trace metals from natural waters of Chesapeake Bay.
1953.
Anal. Chem. Volume 25(12).

Ref. No. 133

Organotin concentrations in centrifuged versus uncentrifuged water column samples and in sediment pore waters of a northern Chesapeake Bay tributary. W.E. Johnson, L.W. Hall, Jr., S.J. Bushong and W.S. Hall. 1987. In: Proceedings, Volume Four, The ocean-an international workplace. pp 1364-1369.

Ref. No. 134

Iron in Chesapeake Bay waters.
Sananman, M., and D. W. Lear. 1961.
Chesapeake Sci., Vol. 2(3/4): 207-209.

Ref. No. 135

Chesapeake Bay aerial precipitation survey: wet fall precipitation chemistry basic data report. Robert D. Conkwright, J.M. Hill, Maria-Victoria Chattey. 1982. U.S. Environmental Protection Agency - Chesapeake Bay Program. Grant No. X003230.

Ref. No. 136

Uptake and phytotoxicity of soil-sorbed atrazine for the submerged aquatic plant, *Potamogeton perfoliatus*.
T.W. Jones and P.S. Estes. 1981/2.
University of Maryland-CEES, Cambridge, MD.

Ref. No. 137

Benthic studies to assess thermal impacts of the H.A. Wagner Steam Electric Station, Patapsco River, MD, June 1981 - February 1982. Heck, K.L. and R.W. Osman. 1982.
Prepared for the MD Dept. of Natural Resources by the Benedict Estuarine Research Lab. of the Academy of Natural Sciences of Philadelphia. Benedict, MD. PPSP-W-82-1.

List of References

Ref. No. 138

A biological study of Baltimore Harbor. Literature review.
Natural Resources Institute, Chesapeake Biological Laboratory, University of MD. 1971.
Prepared for the Maryland Department of Water Resources Annapolis, MD. 4-10 pp.

Ref. No. 139

Evaluation of the problem posed by in-place pollutants in Baltimore Harbor and recommendation of corrective action. Appendices.
U.S. EPA, Office of Water Planning and Standards. 1977.
U.S. EPA, Washington, DC.

Ref. No. 140

Gross physical and biological effects of overboard spoil disposal in upper Chesapeake Bay.
Biggs, R. B. 1970.
Natural Resources Institute of the University of Maryland. Special Report No.3, 66 pp.

Ref. No. 141

Trace metal concentrations in the sediments of Baltimore Harbor at Dundalk marine terminal.
Biggs, R. B. 1968.
University of Maryland, Chesapeake Biological Laboratory, Ref. No. 68-97.

Ref. No. 142

Analysis of effluents and associated sediments and tissue for toxic organic compounds 1987-1988. Part I of II.
R. C. Hale and C. L. Smith. 1988.
Virginia Institute of Marine Sciences for the Virginia State Water Control Board.

Ref. No. 143

Monitoring and prediction of tributyltin in the Elizabeth River and Hampton Roads, Virginia.
P.F. Seligman, C.M. Adema, P.M. Stang, A.O. Valkirs, and J.G. Grovhoug. 1987.
In: Proceedings, Volume Four, The ocean-an international workplace. pp. 1357-1363.

Ref. No. 144

Studies of the effects of industrial pollution in the lower Patapsco River area: 2. The effects of copper as pollution on plankton.
Davis, C.C. 1948.
University of Maryland, Chesapeake Biological Laboratory, Publication No. 72. 812 pp.

Ref. No. 145

Bioassay for chronic effects of water from Baltimore Harbor. Heinle, D. R. and R. P. Morgan II. 1972.
University of Maryland, Chesapeake Biological Laboratory
Ref. No. 72 - 15. 110 p.

List of References

Ref. No. 146

Studies of the effects of industrial pollution in the lower Patapsco River area: 1. Curtis Bay region.

Olson, R.A., H.F. Brust and W.L. Tressler. 1941.

University of Maryland, Chesapeake Biological Laboratory, Publication No. 43. 40 pp.

Ref. No. 147

Organochlorine residues and histopathological examination of fish from the Potomac and Anacostia Rivers, Washington, DC.

Elizabeth Block. 1990.

U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-01.

Ref. No. 148

Metals in sediment and biota of Mattawoman Creek, Indian Head Naval Ordnance Station, Maryland.

S.L. Goodbred and E. Block. 1990.

U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-02.

Ref. No. 149

Mattawoman Creek/Naval Ordnance Station mercury monitoring study progress report for 1988.

L. Andreason. 1990.

U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-03.

Ref. No. 150

The toxicity of heavy metals to embryos of the American oyster, *Crassostrea virginica*.

Calabrese, A., R. S. Collier, D. A. Nelson and J. R. MacInnes. 1973. *Marine Biology* (18): 162 - 166.

Ref. No. 151

A Study on the chemical behavior of zinc in Chesapeake Bay water using anodic stripping voltammetry.

Bradford, W. L. 1972.

Chesapeake Bay Institute, Johns Hopkins University. Technical Report 76. 103 pp.

Ref. No. 152

Chlordane levels and geographic distribution of chlordane in fish from the non-tidal portion of the Patuxent River.

P. Suzanne Nair. 1990.

U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-04.

Ref. No. 153

Chester River study, Volume 2.

Clarke, W. D. and Palmer, H. D. 1972.

Westinghouse Electric Corporation. 251 pp.

List of References

Ref. No. 154

Biota investigation of freshwater streams possibly affected by southern Maryland wood treating superfund site.

E. Block. 1990.

U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-05.

Ref. No. 155

Heavy metals analyses of bottom sediment in the Potomac River estuary. Pheiffer, T. H. 1972.

U.S. EPA, Annapolis Field Office, Tech. Rep. 49. 22 pp.

Ref. No. 156

Final Report, Baltimore Harbor study.

Stroup, E.D., Pritchard, D.W. and J.H. Carpenter. 1961.

Chesapeake Bay Institute, Johns Hopkins Univ. Tech. Rep. 26, 79 pp.

Ref. No. 157

Oil pollution in Baltimore Harbor.

Wegener, Paul Theodore. 1973.

Unpublished. M. A. Thesis. Johns Hopkins Univ.

Ref. No. 158

Chemical extractions of heavy metals in sediments as related to metal uptake by grass shrimp (*Palaemonetes pugio*) and clam (*Mercenaria mercenaria*).

Rule, J.H. 1985.

Arch. Environ. Contam. Toxicol. 14:749-757.

Ref. No. 159

Surface microlayer sampling results for the Chesapeake Bay. U.S. Environmental Protection Agency, Chesapeake Bay Program. 1991. U.S. Environmental Protection Agency, Chesapeake Bay Program. CBP/TRS 59/91.

Ref. No. 160

Partitioning of copper and organic carbon in the Patuxent River estuary. Zamuda, C.D., D. A. Wright, J. G. Sanders and R.A. Smucker. 1983. University of Maryland, UM-SG-TS-83-07.

Ref. No. 161

Contaminant levels in oysters and clams from Chesapeake Bay 1981-1985. Murphy, D.L. 1990.

Maryland Department of the Environment, Water Management Administration. Tech. Rep. No. 102, 111 pp.

List of References

Ref. No. 162

Heavy metal, polychlorinated biphenyl, and pesticide levels in oysters (*Crassostrea virginica*) 1979 Maryland oyster spat survey.

Garreis, M.J. and F.A. Pittman. 1981. (August).

Office of Environmental Programs, Maryland Department of Health and Mental Hygiene, Baltimore, MD.

Ref. No. 163

Heavy metal, polychlorinated biphenyl, and pesticide levels in oysters (*Crassostrea virginica*) 1980 Maryland Oyster Spat Survey.

Garreis, M.J. and F.A. Pittman. 1982. (May).

Office of Environmental Programs, Maryland Department of Health and Mental Hygiene. Baltimore, MD. 27 pp.

Ref. No. 164

The dynamics of metals in the American oyster, *Crassostrea virginica*. 1. Seasonal effects.

Frazier, J. M. 1975.

Ches. Sci. 16(3): 162 - 171.

Ref. No. 165

Transport of chlorinated hydrocarbons in the upper Chesapeake Bay. Munson, T. O., H. D. Palmer, and J. M. Forns. 1976.

In Proc. of the National Conf. on polychlorinated biphenyls, 1975, Washington, D.C. EPA-560/6-75-004, pp. 218 - 229.

Ref. No. 166

The distribution of heavy metals in the hard clam, *Mercenaria mercenaria*, in the lower Chesapeake Bay region.

Larsen, P.F. 1979.

Estuaries, Vol. 2, No. 1., p. 1-8, March 1979.

Ref. No. 167

Spatial and temporal distribution of butyltin compounds in a northern Chesapeake Bay marina and river system.

Hall, Jr., L.W., S.J. Bushong, W.E. Johnson and W.S. Hall. 1988. Environmental Monitoring and Assessment 10(1988) 229-244.

Ref. No. 168

GC determination of butyltins in natural waters by flame photometric detection of hexyl derivatives with mass spectrometric confirmation. Unger, M.A., W.G. MacIntyre, J. Greaves and R.J. Huggett. 1986. Chemosphere 15:461-470.

Ref. No. 169

Toxicity of tributyltin to selected Chesapeake Bay biota.

S.J. Bushong, W.S. Hall, W.E. Johnson and L.W. Hall, Jr. 1987. In: Proceedings, Vol. 4, The ocean-an international workplace. pp. 1499-1503.

List of References

Ref. No. 170

Copper levels in Patuxent River oysters: seasonal and spatial variability. Zamuda, C.D., D.A. Wright, J.G. Sanders, and R.A. Smucker. 1983. University of Maryland, Sea Grant College. UM-SG-TS-83-09.

Ref. No. 171

The influence of salinity on copper accumulation by the American oyster, *Crassostrea virginica*, and the soft shelled clam, *Mya arenaria*. Zamuda, C.D., D.A. Wright, J.G. Sanders and R.A. Smucker. 1983. University of Maryland, Sea Grant College. UM-SG-TS-83-08.

Ref. No. 172

Factors affecting trace metal accumulation by estuarine oysters *Crassostrea virginica*. Phelps, H.L., D.A. Wright and J.A. Mihursky. 1985. Marine Ecol. Prog. Ser. Vol. 22:187-197. March 21, 1985.

Ref. No. 173

The dynamics of metals in the American oyster, *Crassostrea virginica*. II. Environmental effects. Frazier, J. M. 1976. Ches. Sci. 17: 188 - 197.

Ref. No. 174

Bioaccumulation of cadmium in marine organisms. Frazier, J. M. Environ. Health Perspect. 28: 75-79.

Ref. No. 175

Potential contaminant threats to Presquile National Wildlife Refuge. P. Suzanne Nair. 1990. U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-06.

Ref. No. 176

A research program in determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation, 1974-1982. Phelps, H.L. 1984. Final technical report to NASA, Grant No. 09-050-019. p. 1-82.

Ref. No. 177

Mortality of striped bass larvae in relation to contaminants and water quality in a Chesapeake Bay tributary. Hall, L.H., A.E. Pinkney, L.O. Horseman and S.E. Finger. 1985. Amer. Fish. Soc. 114:861-868. Prepared for the U.S. Fish and Wildlife Service, Cooperative Agreement: 14-16-009-84-90.

Ref. No. 178

Contaminants in fish and sediment at Mason Neck National Wildlife Refuge, VA. Elizabeth Block. 1990. U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-07.

List of References

Ref. No. 179

The effects of atrazine on *Zostera marina* in Chesapeake Bay, Virginia. Hershner, Carl, K. Ward, J. Illowsky, D. Delistraty, and J. Martorana. 1983.

Final Report to the U.S. EPA Chesapeake Bay Program, Annapolis, MD. Contract No.s R805953 and X003245.

Ref. No. 180

Agricultural pesticide use in estuarine drainage areas:

A preliminary summary for selected pesticides.

The national coastal pollutant discharge inventory.

Pait, A.S., D.R.G. Farrow, J.A. Lowe and P.A. Pacheco. 1989. NOAA, Strategic Assessment Branch, Rockville, MD.

Ref. No. 181

Chlorine alternatives: reactions of O₃, H₂O₂, and BrCl with inorganic components of seawater..

Helz, G.R. and L. Kosak-Channing. 1980.

Prepared for the Maryland Department of Natural Resources, Power Plant Siting Program, by the University of Maryland, Chemistry Department, College Park, MD. PPRP-44. NTIS No. PB81-205379.

Ref. No. 182

Mattawoman Creek/Naval Ordnance Station mercury monitoring study progress report for 1989. L. Andreason. 1990.

U.S. Fish and Wildlife Service, Environmental Contaminants Branch. Publ. No. AFO-C90-08.

Ref. No. 183

Power plant cumulative environmental impact report for Maryland. Maryland Department of Natural Resources. 1988.

Power Plant Siting Program, Maryland Department of Natural Resources, Annapolis, MD. PPRP-CEIR-6.

Ref. No. 184

Baltimore integrated environmental management project II report, Baltimore Harbor.

Versar, Inc. and U.S. EPA. 1987.

Ref. No. 185

Bioassay of Baltimore Harbor sediments.

Tsai, C., J. Welch, K. Chang, J. Shaeffer, and L.E. Cronin. 1979.

Estuaries, Vol. 2, No. 3, pp. 141-153. September 1979.

Ref. No. 186

Striped bass contaminant and water quality studies in the Potomac River and upper Chesapeake Bay -- annual contaminant and water quality evaluations in east coast striped bass habitats.

Hall, Jr., L.W., M.C. Ziegenfuss, S.J. Bushong and M.A. Unger. 1988.

Johns Hopkins University, Applied Physics Laboratory, Aquatic Ecology Section, Shady Side, MD.

List of References

Ref. No. 187

Sediment survey of priority pollutants in the District of Colombia waters, data report.
Limno-Tech, Inc. 1990.
Prepared for the Interstate Commission on the Potomac River Basin, Rockville, MD.

Ref. No. 188

Evaluation of butyltin compounds in Maryland waters of Chesapeake Bay.
Hall, L.W., Jr., M.J. Lenkevich, W.S. Hall, A.E. Pinkney, and S.J. Bushong. 1987.
Mar. Pollut. Bull. 18(2):78-83.

Ref. No. 189

A summary of selected data on chemical contaminants in sediments collected during 1984, 1985, 1986, and 1987.
National Oceanic and Atmospheric Administration, et al. 1988. NOAA Technical Memorandum NOS OMA 44. Rockville, MD.

Ref. No. 190

1988 Toxic chemical release inventory (TRI).
Hall, L.
U.S. Environmental Protection Agency, Office of Toxic Substances, Washington, D.C.

Ref. No. 191

1980-90 Oil/chemical spill data in the Chesapeake Bay.
Hughes, S.V.
U.S. Dept. of Transportation. United States Coast Guard., Commander, Fifth Coast Guard District/Portsmouth, Va.

Ref. No. 192

Commonwealth of Virginia pesticide use estimates (1990).
Schweitzer, D.
Virginia Department of Agriculture and Consumer Services, Office of Pesticide Management, Richmond, VA.

Ref. No. 194

Delaware pesticide usage survey, 1989.
Stayton, G., Feurer, T.W., Wesley, F., and DeNardo, M.
Delaware Dept. of Agriculture/Pesticide Compliance Section in conjunction with the Delaware Agricultural Statistics Service, and the National Agricultural Statistics Service, Dover, DE.

Ref. No. 195

Pesticide usage in Pennsylvania's 1990 gypsy moth suppression program.
Bingaman, D.D. and Rhoads, L.D.
Pennsylvania Department of Natural Resources, Bureau of Plant Industry and Bureau of Forestry, Harrisburg, PA.

List of References

Ref. No. 196

1988-90 Maryland municipal priority pollutant loading data.

Ordaz, G.

Maryland Department of the Environment, Pretreatment and Enforcement Division, Baltimore, MD.

Ref. No. 197

EPA Region III's 304(l) 1989 municipal point source loads to the Potomac River.

Cruise, F.

U.S. EPA Region III, Water Management Division, Philadelphia, PA.

Ref. No. 198

Urban toxic loading report---1983 baseline final report.

Olsenholler, S.M.

Metropolitan Washington Council of Governments, Department of Environmental Programs, Washington, D.C.

Ref. No. 199

Pollutants for which specific numerical limits are proposed---40 CFR Parts 257 AND 503, standards for the disposal of sewage sludge; Proposed rule.

U.S. Environmental Protection Agency, Office of Water Regulations and Standards Criteria and Standards Division, Washington, D.C.

Ref. No. 200

Most frequently detected priority pollutants in the National Urban Runoff Program (NURP) urban runoff samples---Table 4 of the "Preliminary Findings of the Priority Pollutant Monitoring Project of the Nationwide Urban Runoff Program".

Cole, R.H., Frederick, R.E., Healy, R.P., and Rolan, R.G.

Water Pollution Control Federation Journal, Volume 56, Number 7 U.S. Environmental Protection Agency, Washington, D.C.

Ref. No. 201

Implementation of the requirements under Section 304(l) of the Clean Water Act as amended---substances regulated under this section of the act differ for each facility/state---substances in this referenced file do not represent all those addressed in the regulation.

Macknis, J. and Dowell, K. 1990. (for the supplementary substances associated with this reference only).

U.S. Environmental Protection Agency, Office of Water Regulations and Standards/Office of Water Enforcement and Permits, Washington, D.C., and Chesapeake Bay Program Office, Annapolis, MD.

Ref. No. 202

"Fate of priority toxic pollutants in publicly owned treatment works"---final report.

Burns and Roe Industrial Services Corporation, September 1982.

U.S. Environmental Protection Agency, Office of Water Regulations and Standards, Effluent Guidelines Division, Washington, D.C.

List of References

Ref. No. 203

EPA Region III's 304(l) 1989 industrial point source loading data to the Anacostia River.
Cruise, F.
U.S. EPA Region III, Water Management Division, Philadelphia, PA.

Ref. No. 205

Interstate Commission on the Potomac River Basin (ICPRB) toxic loadings for Delaware and West Virginia industrial point sources.
Velinsky, D.
Interstate Commission on the Potomac River Basin, Rockville, MD.

Ref. No. 206

Use of selected pesticides in agricultural crop production by state (1983). Gianessi, L.P., and Puffer, C.A.
Resources for the Future, Quality of the Environment Division, Washington, D.C. April 1988.

Ref. No. 207

Maryland industrial priority discharger toxic loads data.
Tablada, H., and Spath, J.
Maryland Department of the Environment, Groundwater Permits and Oil Control Division, Baltimore, MD.

Ref. No. 208

1990 Pennsylvania priority discharger toxic substance loads based on permit compliance system (PCS) data.
U.S. EPA Permit Compliance System, U.S. Environmental Protection Agency, Region III, Philadelphia, PA.

Ref. No. 209

1983 Crab survey.
M. J. Garreis and D. Murphy.
Maryland Department of the Environment, 2500 Broening Highway, Baltimore, MD. 21224.

Ref. No. 210

Heavy metal levels in shellfish, 1973-1975.
M. Eisenberg.
Maryland Department of Health and Mental Hygiene, 201 West Preston Street, Baltimore, MD. 21201.

Ref. No. 211

Shellstock Contaminant Monitoring Program.
M. J. Garreis, D. Murphy, and P. Distefano.
Maryland Department of the Environment, 2500 Broening Highway, Baltimore, MD. 21224.

Ref. No. 212

Basic Water Monitoring Program fish tissue network.
M. J. Garreis and D. Murphy.
Maryland Department of the Environment, 2500 Broening Highway, Baltimore, MD. 21224.

List of References

Ref. No. 213

Fort McHenry Tunnel, environmental assessment, dredging and spoil disposal Technical Report. No. 1, Volume II.

U.S. Dept. of Trans., Fed. High. Admin., Md. Dept. of Trans. Interstate Route 95.

Ref. No. 214

1988 and 1989 pesticide use data in the Blackwater, Eastern Neck of Maryland, and Eastern Shore of Virginia/Norfolk National Wildlife Refuges.

Fritz, R.

U.S. Department of the Interior, Fish & Wildlife Service, Chesapeake Bay Estuary Program, Annapolis, MD.

Ref. No. 215

Surface microlayer sampling results for upper Chesapeake Bay spring 1988

Gucinski, H. and R. Preston.

Environmental Center, Anne Arundel Community College. Annapolis, Maryland.

Ref. No. 216

Baltimore Harbor and channels: surface sediments in Virginia channels.

Byrne, R.J. and R.J. Huggett.

Virginia Institute of Marine Sciences, Gloucester Point, Virginia.

Ref. No. 217

Benthic and fish studies to assess thermal impacts of the H.A. Wagner Electric Station, Patapsco River, Maryland 1980-1981, Report No. 81-24F.

Benedict Estuarine Research Laboratory, Benedict, Maryland and Academy of Natural Sciences of Philadelphia, 1981. Philadelphia, Pennsylvania.

Ref. No. 218

Sediment collection and sediment chemistry pursuant to dredging of the Barge Channel at the Brandon Shores/ Wagner Power Plant, Data Report.

Gilbert Association, Inc. Reading Pennsylvania and Ecological Analysts Report, Inc. 1980, GCA01K, Towson, Maryland.

Ref. No. 219

Supplemental information to the final environmental statement for the operation and maintenance of Baltimore Harbor and associated channels, Maryland and Virginia.

U.S. Army Corps of Engineers, Baltimore District, Maryland. 1975.

Ref. No. 220

Trace metal concentrations in the sediments of Baltimore Harbor at the Dundalk Marine Terminal, CBL Ref. No. 68-97.

Biggs, R.B. 1968.

Chesapeake Biological Laboratory, Solomons, Maryland.

List of References

Ref. No. 221

Maryland Port Authority, unpublished data.

Douglas, H.T.

Maryland Port Administration, Dept. of Transportation, 1971.

Ref. No. 222

Dredge spoil disposal at Pooles Island deep and spoil quality at Dundalk Marine Terminal.

Sloan, W. and P. Tinsley. 1971.

Maryland Environmental Service, Annapolis, Maryland.

Ref. No. 223

Disposal of Dundalk Marine Terminal bulkhead construction spoil (Memorandum for Record) unpublished data.

Sloan, W. and P. Tinsley. 1971.

Maryland Environmental Service, Annapolis, Maryland.

Ref. No. 224

Report on Bodkin Creek sediment study.

Derosé, C.R. 1979.

Water Resources Administration, Dept. of Natural Resources, Maryland.

Ref. No. 225

Baltimore Harbor dredge spoil survey.

Sloan, W. 1972.

Dept of Water Resources.

Ref. No. 226

Unpublished sediment data.

Dept of Water Resources. 1968.

Ref. No. 228

Investigations of dredging operations, Craighill Angle - Patapsco River mouth disposal site, March 9, 1977 - May 23, 1977, Open file Report No. 12

Cronin, W.B., Gross M.G., et al. 1978.

Chesapeake Bay Institute, Johns Hopkins University, Baltimore, MD.

Ref. No. 229

Craighill/Brewerton Angles survey. Unpublished Sediment Data.

Water Resources Administration. 1977.

Ref. No. 230

Craighill Angle survey. Unpublished sediment data.

Water Resources Administration. 1976.

Ref. No. 231

Sediment analysis of the Baltimore, Connecting Channel, Swan Point Channel, and Tolchester Channel.

U.S. Corps of Engineers. 1979.

List of References

Ref. No. 232

Sediment analysis of the Craighill Angle, Cutoff Angle, Patapsco River disposal area, and Pooles Island deep disposal area.

U.S. Army Corps of Engineers, Baltimore District, 1979.

Enviroplan, Inc. No. DACW31-78-D-0007.

Ref. No. 233

Sediment sampling and analysis, Cutoff Angle, Brewerton Channel, and Brewerton Angle.

U.S. Army Corps of Engineers, Baltimore District. 1981.

Enviro Control, Inc. No. DACW31-80-D-0016.

Ref. No. 234

Metal analyses of Patapsco River and Upper Chesapeake Bay sediments Table 1, unpublished data.

Biggs, R.B. 1970.

Ref. No. 235

Selection and preliminary design of diked areas for dredged spoil from Baltimore Harbor, Vol II.

Green Associates, and Trident Engineering Associates. 1970.

Department of General Services, Baltimore - Annapolis, Maryland.

Ref. No. 237

1990 Pennsylvania pesticide use estimates.

Harp, A., and Bingaman, D.

The Pennsylvania State University, College of Agriculture, for the Pennsylvania Department of Agriculture, Bureau of Plant Industry, Harrisburg, PA.

Ref. No. 238

Toxic substance in submerged aquatic vegetation beds, January 1990.

Jeffrey C. Cornwell and J. Court Stevenson. 1990.

Horn Point Environmental Laboratories, University of Maryland, Center for Environmental and Estuarine Studies, Cambridge, Md 21613.

Ref. No. 239

Chesapeake Bay Toxics Loading Inventory: atmospheric deposition component.

Baker, J.E.

Chesapeake Biological Laboratory, Center for Environmental and Estuarine Studies, The University of Maryland System, Solomons, MD.

Ref. No. 240

Maryland municipal and industrial 304(l) point source loads for the Toxics Loading Inventory. Tablada, H.

Maryland Department of the Environment, Baltimore, MD.

List of References

Ref. No. 241

Maryland Chesapeake Bay sediment toxicant monitoring program.

Robert Magnien.

Maryland Department of the Environment/Water Management Administration Chesapeake Bay and Special Projects Program, 2500 Broening Highway, Baltimore Md. 21224

Ref. No. 242

NOAA Status and Trends Program summary of data on chemical contaminants in sediments NOS/OMA 59. April 1991.

Thomas P. O'Connor. 1991.

NOAA/NOS, 6001 Executive Blvd., Rockville, Md. 20852

Ref. No. 243

1989 Toxic chemical release inventory (TRI).

Hall, L.

U.S. Environmental Protection Agency, Office of Toxic Substances, Washington, D.C.

Ref. No. 244

Virginia point source Toxic Loading Inventory estimate.

Kennedy, J.

Commonwealth of Virginia, State Water Control Board, Chesapeake Bay Office.