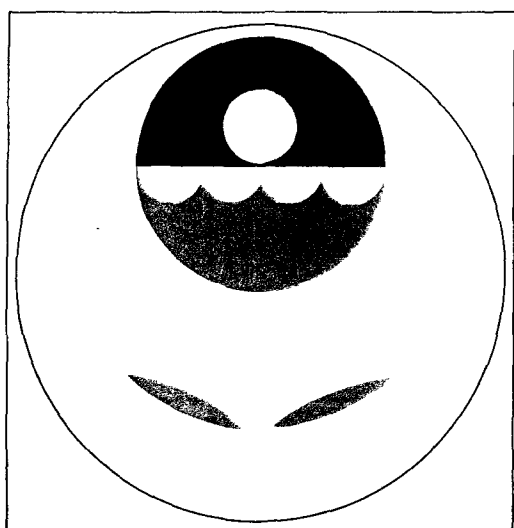


# U.S. ENVIRONMENTAL PROTECTION AGENCY



WATER QUALITY SURVEY  
OF THE  
POTOMAC ESTUARY  
EMBAYMENTS AND TRANSECTS

1970  
DATA REPORT

Number 28

Annapolis Field Office  
Region III  
Environmental Protection Agency

1970 Data Report

Number 28

WATER QUALITY SURVEY  
OF THE  
POTOMAC ESTUARY  
EMBAYMENTS AND TRANSECTS

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TABLE OF CONTENTS

	Page
I INTRODUCTION.....	1
II STATION LOCATIONS.....	6
III SURVEY RESULTS.....	9
IV MAP.....	appendix i

## I INTRODUCTION

### A. Purpose and Scope

During 1970, water quality studies were continued by the Annapolis Field Office, Region III, Environmental Protection Agency in the Potomac estuary watershed. Purpose of these surveys was to determine existing water quality. The results of these investigations are presented in this report.

### B. General Remarks

Transect stations were sampled during February and March. Mid-channel samples only were taken using stations that had previously been transected. Also included in this report are selected embayments sampled from February to July. Nutrient as well as dissolved oxygen, carbon and chlorophyll a analyses were made by the Annapolis Field Office.

### C. Sampling Procedures

Samples were obtained using a small submersible pump attached to a wire cable calibrated in feet. The pump was lowered to the desired depth and allowed to run for two minutes before receiving samples in plastic containers. Dissolved oxygen (DO) samples were obtained directly from the pump outlet extending to the bottom of a conventional 300 ml DO bottle. The sample was allowed to overflow the bottle several times and fixed. All samples were immediately stored on ice and

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analyses started upon return to the laboratory, generally within two hours of sampling.

D. Measured Parameters and Analytical Methods

1. Water temperature was read from a Beckman Salinometer.

2. Light extinction, in inches, was made with a 12" (30 cm) white secchi disk.

3. Conductivity was read from a calibrated Beckman Salinometer.

4. Salinity was determined with a calibrated Beckman Salinometer.

5. Total Phosphorus

Reference: Menzel, D.W. and Corwin, N., 1965. The Measurement of Total Phosphorus in Seawater Based on the Liberation of Organically Bound Fractions by Persulfate Oxidation. *Limnology and Oceanography*, 10: 280-282.

Murphy, J. and Riley, J.P., 1962. A Modified Single Solution Method for the Determination of Phosphate in Natural Waters. *Analytica Chimica Acta*, 27: 31-36.

Total Phosphorus was determined after persulfate oxidation of the sample in an autoclave at 15 psi for 30 minutes. The resultant ortho-phosphate was then determined colorimetrically as the molybdenum-blue complex with the optical density measured at 882 m $\mu$ .



#### 6. Inorganic Phosphorus

Reference: Murphy, J. and Riley, J.P., 1962. A Modified Single Solution Method for the Determination of Phosphate in Natural Waters. *Analytica Chimica Acta*, 27: 31-36.

Inorganic Phosphorus was determined by automation of the above procedure using the Technicon "Auto Analyzer." The molybdenum-blue complex formed was determined colorimetrically with the optical density measured at 885 m $\mu$ .

#### 7. Total Kjeldahl Nitrogen

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Total Kjeldahl Nitrogen includes ammonia and organic nitrogen and was determined by the standard micro-kjeldahl procedure. The sample was digested in the presence of strong acid to convert the organic nitrogen to ammonia. The ammonia was then distilled, collected in boric acid solution, nesslerized and determined colorimetrically.

#### 8. Nitrate + Nitrite

Reference: A Practical Handbook of Sea Water Analysis, J.D.H. Strickland and T.R. Parsons, Bulletin 167, Fisheries Research Board of Canada, Ottawa, Canada, 1968.

Nitrate plus nitrite nitrogen was determined by automation of the above procedure using the Technicon "Auto Analyzer." This procedure utilizes cadmium reduction of nitrate





to nitrite and subsequent diazotization with sulfanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride with the optical density measured at 540 m $\mu$ . The results were reported as nitrogen.

9. Ammonia

Reference: Southeast Water Laboratory, FWQA, Methodology for the colorimetric determination of ammonia by the phenol-hypochlorite reaction.

FWPCA Methods for Chemical Analysis of Water and Wastes, November 1969.

Ammonia nitrogen was determined by automation of the phenol-hypochlorite procedure as described in the Southeast Water Laboratory Methodology and later adopted as the official FWPCA procedure. The intensity of the indophenol blue color, formed by the reaction of ammonia with alkaline phenol-hypochlorite, was increased using sodium nitroprusside as an intensifying agent. The optical density was measured at 630 m $\mu$  and calculated as NH<sub>3</sub>-N.

10. Dissolved Oxygen

Reference: FWPCA Methods for Chemical Analysis of Water and Wastes, November 1969.

Dissolved Oxygen was determined by the azide modification of the basic Winkler method with the titration done potentiometrically with a Fisher automatic "titralyzer."



11. Total Organic Carbon

Reference: FWPCA Methods for Chemical Analysis of Water and Wastes, November 1969.

Total Organic Carbon was determined with a Dow-Beckman Carbonaceous Analyzer after the sample had been purged with nitrogen gas for five minutes.

12. Total Carbon

Reference: Beckman Instruments, Bulletin 4059.

Total Carbon was determined with a Dow-Beckman Carbonaceous Analyzer using the sample as received.

13. Chlorophyll a

Reference: A Practical Handbook of Sea Water Analysis, J.D.H. Strickland and T.R. Parsons, Bulletin 167, Fisheries Research Board of Canada, Ottawa, Canada. 1968.

Chlorophyll a was determined by extraction of millipore filtered samples in 90% acetone and read spectrophotometrically.



## II STATION LOCATIONS

<u>Transect Station</u>	<u>Location</u>
7	Piscataway "77"
8	Dogue Creek Fl "67"
8A	Gunston Cove Fl "64"
9	Hallowing Point Fl "59"
10	Indian Head N "54"
10A	Occoquan Bay Fl "51"
11	Possum Point Fl "44"
12	Sandy Point N "40"
13	Smith Point Fl "27"
14	Maryland Point Fl "21"
15	Nanjemoy Creek N "10"
15A	Port Tobacco C "3"
16	301 Bridge



Embayment Station	Location
7 1	Piscataway Creek, headwaters
7 2	" "
7 3	" " , mouth
7 MC	Potomac Fl "77"
8 1	Dogue Creek, above boathouse
8 2	" " , opposite boathouse
8 3	" " , midway boathouse and Fl "67"
8 MC	Potomac Fl "67"
8A 1	Gunston Cove
8A 2	" " , Can "3"
8A 3	" " , Nun "2"
8A MC	Potomac Fl "64"
10 MC	Indian Head
10A 0	Occoquan Bay, Fl "12"
10A 1	" " , Fl "9"
10A 2	" " , Fl "6"
10A 3	" " , Fl "2"
10A 3A	" " , Mid bay
10A MC	Potomac Fl "51"
10B 0	Mattawoman Creek, near bridge
10B 1	" " , Bullitt Neck
10B 2	" " , Sweden Point





<u>Embayment Station</u>	<u>Location</u>
10B 3	Mattawoman Creek, Deep Point
10B MC	Potomac Fl "45"
11 MC	Possum Point
12 MC	Sandy Point



III SURVEY RESULTS  
1970  
POTOMAC ESTUARY EMBAYMENTS  
ANNAPOLIS FIELD OFFICE

Sample Number	Date Sample Taken	Time Sample Taken	Secchi Disk Inches	Cond Salinity O/00	Salinometer Temp °C	Total P			TKN mg/l	NO <sub>2</sub> +NO <sub>3</sub> mg/l		NH <sub>3</sub> N mg/l	DO mg/l	TOC mg/l	TC mg/l	Chlorophyll a µg/l
						PO <sub>4</sub> mg/l	Inorganic P mg/l	PO mg/l		NO <sub>3</sub> -N	NO <sub>2</sub> -N					
Station 7 1 - Piscataway Creek, Headwaters																
70022511	2-25	1455	12	.50	.40	5.43	1.360	.895	1.010	1.160	.858	11.00				2.3
031229	3-12	1150	12			2.50	.942	.668	.914	1.040	.654	11.47				81.0
050801	5-07		11			15.00	.994	.329	1.800	.872	.287	6.78				29.3
2001	5-19	1545	10	.39	.19	22.50	1.434	.425	3.523	.467	.101	13.24		14.16		261.8
061003	6-10	1005	12			26.32	1.325	.516	2.229	.399	.758	8.54				189.8
070917	7-09	1110	13			27.00	1.324	.790	2.585	.824	.746	9.18				
Station 7 2 - Piscataway Creek																
70022512	2-25	1450	24	.55	.45	5.20	1.040	.662	.650	1.380	.465	11.95				1.5
031230	3-12	1145	12			2.00	.996	.695	.763	1.040	.703	11.32				6.8
050802	5-07	1345	13			15.00	.705	.398	1.170	1.010	.395	12.87				46.5
2002	5-19	1540	11	.41	.18	22.50	1.244	.545	1.686	.440	.565	11.58		9.18		39.8
061004	6-10	1015	14			25.50	1.284	.900	1.724	.398	1.264	6.19				51.0
070918	7-09	1105	12			27.00	1.301	.870	1.892	1.028	1.036	7.47				180.0
Station 7 3 - Piscataway Creek, Mouth																
70022513	2-25	1445		.60	.48	5.23	1.120	.660	.544	1.350	.449	11.86				12.0
031231	3-12	1140	12			2.00	1.080	.700	.908	1.050	.798	11.36				13.5
050803	5-07	1335	21			16.00	.801	.456	.964	1.040	.412	12.72				45.0
2003	5-19	1535	15			22.50	1.607	.760	1.552	.460	1.010	4.69		7.02		49.5
061005	6-10	1020	16	.40	.23	25.66	1.047	.950	1.526	.346	1.388	4.88				30.0
070919	7-09	1103	13			27.00	1.191	.785	1.739	1.208	.768	7.00				150.0
Station 7 MC - Potomac - Fl. "77"																
70022514	2-25	1440	15	.59	.47	4.80	1.130	.725	.645	1.400	.606	11.91				12.0
031232	3-12	1135	13			2.00	1.160	.715	.387	1.070	.819	11.20				7.5
1901	3-19	1320	24	1.40	1.14	5.72	1.120	.710	1.230	1.100	.868	11.55				3.8
050804	5-07	1220	24			17.00	.680	.465	.863	1.040	.522	10.38				12.8
2004	5-19	1528	24			23.00	1.377	.815	1.343	.451	1.010	5.34		10.92		46.5
061006	6-10	1030	18	.41	.20	25.78	.317	.975	1.797	.336	1.440	3.95				24.8
070920	7-09	1100	12			27.00	1.324	.835	1.892	1.132	.848	8.49				172.5
Station 8 1 - Dogue Creek, Above Boatouse																
70022515	2-25	1418	14	.51	.40	6.13	1.960	1.310	.908	1.310	1.090	10.82				10.5
031233	3-12	1050	15			2.50	1.180	.785	.897	1.110	.914	11.23				28.5
050805	5-07	1155	19			14.50	.694	.475	.934	.986	.443	7.18				16.5
2005	5-19	1515	12	.44	.22	23.50	1.169	.700	1.692	.464	.793	11.78		9.21		26.3
061007	6-10	1438	20			28.20	1.068	1.010	.357	.357	1.207	8.88				82.5
070921	7-09	1045	10			26.50	2.074	1.205	2.483	.883	.218	7.91				277.5



Sample Number	Date Sample Taken	Time Sample Taken	Secchi Disk Inches	Salinometer		Total P		Inorganic P		NO <sub>2</sub> +NO <sub>3</sub>		NH <sub>3</sub> mg/l N	DO mg/l	TOC mg/l	TC mg/l	Chloro-phyll a µg/l
				Cond µmhos	Salinity ‰	PO <sub>4</sub> mg/l	PO <sub>4</sub> mg/l	TKN mg/l	NO <sub>2</sub> mg/l	NO <sub>3</sub> mg/l						
Station 8 2 - Dogue Creek, Opposite Boathouse																
70022516	2-25	1410	9	.50	5.26	1.090	.720	.757	1.480	.640	11.74	9.0				
031234	3-12	1100	13		2.00	1.090	.688	.785	1.070	.722	11.33	26.3				
050806	5-07	1145	18		16.00	1.090	.668	1.280	.828	.521	10.01	22.5				
2006	5-19	1510	12		23.00	1.137	.745	1.523	.470	.907	8.50	6.19				
061008	6-10	1435	24	.20	28.34	.939	1.035	2.031	.342	1.577	7.61	53.3				
070922	7-09	1042	14		27.00	.805	.605	1.438	1.349	.090	7.58	150.0				
Station 8 3 - Douge Creek, Midway Boathouse and Fl. "67"																
70022517	2-25	1405	12	.46	5.42	1.280	.800	.914	1.400	.658	11.08	3.0				
031235	3-12	1105	12		2.50	1.220	.644	.022	1.080	.659	11.43	8.0				
050807	5-07	1140	20		16.00	.548	.418	1.060	1.010	.607	9.30	4.3				
052007	5-19	1505	15		22.00	1.027	.830	1.226	.496	1.120	4.06	6.20				
061009	6-10	1430	26	.40	28.20	.176	.800	2.057	.441	1.273	7.59	51.8				
070923	7-09	1040	14		26.50	.789	.573	1.000	1.358	.054	7.33	127.5				
Station 8 MC - Potomac, Fl. "67"																
70022518	2-25	1400	15	.50	4.34	1.150	.665	.818	1.470	.562	11.86	9.0				
031236	3-12	1115	15		2.00	1.060	.640	.875	1.090	.673	11.35	15.0				
1902	3-19	1310	24	1.10	5.72	1.180	.835	1.240	1.150	.921	11.10	9.0				
050808	5-07	1205	22		17.50	.691	.464	1.080	.980	.505	9.17	20.3				
2008	5-19	1520	18		22.00	1.508	.885	1.616	.460	.496	6.22	10.28				
061010	6-10	1444	20	.35	26.73	1.263	.945	2.016	.429	1.454	11.44	48.0				
070924	7-08	1035	16		27.00	.733	.554	2.432	1.340	.041	7.64	127.5				
Station 8A 1 - Gunston Cove																
70022519	2-25	1337	13	.52	5.24	.964	.609	.796	1.280	.537	11.42	6.8				
031237	3-12	1025	30		4.00	.996	.530	.807	1.180	.329	16.18	120.0				
050809	5-07	1115	15		16.00	.443	.281	.601	.943	.168	6.88	9.8				
2009	5-19	1445	10		21.50	.595	.423	.878	.476	.304	9.00	31.5				
061011	6-10	1417	22	.38	28.16	.665	.200	1.578	.447	.001	15.50	8.36				
070901	7-08	1542	13		28.00	.709	.152	2.017	.041	.014	11.59	174.0				
Station 8A 2 - Gunston Cove Can "3"																
70022520	2-25	1330	18	.56	4.78	1.060	.670	.908	1.490	.589	12.19	39.0				
031238	3-12	1020	24	.65	6.54	1.040	.602	.835	1.120	.573	12.43	60.0				
050810	5-07	1030	15		17.00	.710	.458	.471	.991	.594	7.98	12.0				
2010	5-19	1440	12		22.50	.742	.648	.471	.471	.344	10.21	54.8				
061012	6-10	1414	16	.35	28.52	.655	.261	1.370	.380	.111	9.63	100.5				
070902	7-08	1537	13		27.00	.660	.247	1.648	.653	.014	10.39	8.84				
Station 8A 3 - Gunston Cove, Nun "2"																
70022521	2-25	1325	12	.57	5.30	1.120	.661	.903	1.460	1.400	11.98	19.5				
031239	3-12	1010	24	.64	6.82	.985	.605	.987	1.160	.610	11.94	75.8				
050811	5-07	1020	16		18.00	.943	.468	.559	1.010	.640	7.26	3.8				
2011	5-19	1430	12		22.00	1.169	.755	.977	.555	.905	5.64	124.5				
061013	6-10	1412	24	.38	27.36	.918	.665	1.771	.579	.835	4.19	69.0				
070903	7-08	1534	14		28.00	.753	.263	1.904	.751	.016	4.74	11.70				



Sample Number	Date Sample Taken	Time Sample Taken	Secchi Disk Inches	Cond μmhos	Salinity O/00	Temp °C	Total P mg/l	Inorganic P PO <sub>4</sub> mg/l	TKN mg/l	NO <sub>2</sub> -N mg/l	NO <sub>3</sub> -N mg/l	NH <sub>3</sub> mg/l	DO mg/l	TOC mg/l	TC mg/l	Chloro-py a μg/l
70022522	2-25	1350	15	.52	.46	4.54	1.080	.620	.813	1.500		.634	11.83			5.3
031240	3-12	1035	15			2.00	1.110	.635	.931	1.080		.689	11.24			31.5
1903	3-19	1300	24	1.36	1.06	5.68	1.130	.805	.920	1.160		.875	11.01			8.3
050812	5-07	1130	23			17.00	.577	.409	1.050	.984		.589	7.52			21.0
2012	5-19	1455	24			22.00	1.475	.845	1.639	.496		1.080	4.44	5.00	7.40	27.8
061014	6-10	1422	20	.42	.18	27.00	.370	.875	1.146	.483		1.365	10.42	8.08		74.3
070904	7-08	1550	16			27.50	.875	.444	1.619	1.283		.031	14.83	8.84		128.3
70061015	6-10	1338	20	.33	.20	26.04	.683	.293	1.042	.426		.158	8.21	9.09		59.3
70022523	2-25	1256	8	.47	.41	4.01	.359	.382	.847	.729		.129	12.13			2.3
031904	3-19	1050	24	1.16	.88	5.52	.385	.296	.549	.714		.186	12.18			10.5
052013	5-19	1350	14			19.00	.450	.266	.953	.184		.300	8.06	10.04	10.39	40.5
061016	6-10	1322	15	.25	.10	26.33	.519	.230	1.245	.001		.001	13.10			49.5
070905	7-08	1400	10			27.00	.750	.264	1.932	.001		.025	10.21	15.34		230.3
70022524	2-25	1250	6	.39	.32	6.00	.701	.400	.656	.685		.073	12.80			106.5
031905	3-19	1040	15	1.24	.98	5.50	.353	.267	.336	.707		.137	12.06			11.3
052014	5-19	1345	8			21.00	.378	.298	1.313	.183		.354	7.36	10.49	12.31	56.3
061017	6-10	1317	12	.28	.16	26.26	.595	.218	1.047	.001		.001	10.31	10.97		69.0
070906	7-08	1357	9			27.00	.844	.284	2.176	.001		.025	10.98	14.68		225.8
70022525	2-25	1245	6	.44	.34	5.83	.553	.374	.600	.661		.049	12.33			104.3
031906	3-19	1030	13	1.32	1.00	5.22	.389	.070	.606	.235		.063	13.61			120.0
052015	5-19	1340	8			21.00	.528	.273	1.349	.157		.402	7.55	9.39	7.30	18.0
061018	6-10	1310	14	.29	.10	26.90	.536	.239	.833	.001		.001	12.61	11.19		70.5
070907	7-08	1350	8			28.00	1.004	.334	2.216	.001		.022	11.10	12.34		233.3
70022526	2-25	1227	10	.51	.44	5.23	.611	.418	.359	.965		.042	13.56			96.0
031907	3-19	1025	13	2.12	1.78	5.02	.370	.083	.617	.477		.049	13.73			116.3
052016	5-19	1335	12			21.00	.630	.256	1.529	.215		.320	7.29	12.32	10.04	21.0
061019	6-10	1305	20	.45	.20	27.40	.605	.245	1.427	.398		.001	11.73	7.78		61.5
070908	7-08	1345	11			26.50	.709	.342	1.165	.261		.018	11.40	10.06		170.3
70022527	2-25	1220	11	.57	.47	4.29	1.020	.619	1.150	1.440		.490	11.72			40.5
031908	3-19	1010	15	2.04	1.68	5.32	.643	.452	.875	.987		.389	11.70			57.8
052017	5-19	1325	18			22.00	.737	.482	1.267	.774		.557	8.24	4.95	6.12	82.5
061020	6-10	1300	24	.38	.19	27.82	.609	.333	1.214	.864		.001	7.96	7.58		55.5
070909	7-08	1338	12			26.00	.687	.355	1.818	.291		.018	10.97	9.10		182.3





Sample Number	Date Sample Taken	Time Sample Taken	Secchi Disk Inches	Cond Salinity ‰	Salinometer Temp °C	Total P		TKN mg/l	NO <sub>3</sub> +NO <sub>2</sub>		DO mg/l	TOC mg/l	TC mg/l	Chlorophyll a µg/l
						PO <sub>4</sub> mg/l	Inorganic P mg/l		NO <sub>3</sub> -N mg/l	NO <sub>2</sub> -N mg/l				
Station 10A MC - Potomac, Fl. "51"														
70022528	2-25	1214	13	.50	.44	4.40	1.740	.574	.886	1.470	.573	11.68		21.8
031241	3-12	0955	28	.48	.44	6.30	.942	.635	1.240	1.240	.793	11.62		54.8
1909	3-19	1110	15	1.30	1.12	5.78	811	.645	1.090	1.090	.728	10.67		27.8
052018	5-19	1315	24			22.00	.699	.370	1.639	.259	.411	7.08	4.35	138.0
061021	6-10	1255	24	.44	.23	27.21	.678	.435	1.250	.986	.195	7.85	6.05	35.3
070910	7-08	1332	18			27.00	.759	.281	2.244	.001	.027	8.20	14.82	174.8
Station 10B 0 - Mattawoman CK., Near Bridge														
70022529	2-25	1145	12	.48	.36	6.50	.524	.245	.723	.372	.060	10.89		18.0
031910	3-19	1215	6	1.22	.82	5.62	.473	.086	1.170	.001	.224	13.11		183.0
052019	5-19	1245	10			21.00	.730	.347	1.814	.117	.727	4.35	9.52	27.8
061022	6-10	1225	12	.44	.28	26.56	.528	.291	1.146		.001	10.04	9.88	54.8
070911	7-08	1300				28.00	.709	.276	2.500	.009	.027	11.42	12.86	212.3
Station 10B 1 - Mattawoman CK., Bullitt Neck														
70022530	2-25	1135	12	.54	.46	5.80	.509	.266	.549	.531	.057	11.63		63.0
031911	3-19	1205	15	1.34	.88	5.78	.467	.094	1.020	.019	.053	13.75		223.5
052020	5-19	1232	10			22.00	.726	.317	1.488	.208	.449	5.68	7.34	36.0
061023	6-10	1215	12	.34	.14	27.30	.666	.270	2.031	.022	.001	12.79	9.29	111.0
070912	7-08	1253	10			28.50	.811	.282	2.131	.001	.027	12.02	14.56	218.3
Station 10B 2 - Mattawoman CK., Sweden Point														
70022531	2-25	1125	12	.61	.53	5.01	.649	.367	.650	.802	.156	11.60		51.0
031912	3-19	1155	12	1.26	.88	5.60	.552	.094	.863	.134	.063	14.36		257.3
052021	5-19	1225	12			21.00	.554	.256	1.034	.320	.224	6.35	7.80	50.3
061024	6-10	1210	20	.35	.16	26.91	.659	.277	1.693	.107	.001	10.20	9.75	129.8
070913	7-08	1245	10			28.00	.775	.278	2.585	.001	.026	11.71	14.30	183.8
Station 10B 3 - Mattawoman CK., Deep Point														
70022532	2-25	1115	14	.65	.56	4.70	.942	.553	.892	1.280	.468	11.81		30.0
031913	3-19	1150	12	1.26	.98	5.62	.535	.073	1.290	.290	.056	14.49		262.5
052022	5-19	1220	12			21.00	.479	.255	1.110	.352	.257	7.28	8.72	42.8
061025	6-10	1205	20	.35	.18	25.90	.523	.303	.807	.390	.001	7.79	7.08	78.8
070914	7-08	1240	10			28.50	.800	.311	2.415	.442	.021	12.13	11.44	123.0
Station 10B MC - Potomac, Fl. "45"														
70022533	2-25	1200	12	.53	.45	4.00	1.270	.574	.897	1.410	.622	11.56		13.5
031242	3-12	0940	24	.58	.52	6.02	1.110	.678	.841	1.240	1.050	11.57		26.3
1914	3-19	1125	15	1.32	1.10	6.20	.722	.578	.224	1.070	.623	11.36		36.0
052023	5-19	1205	18			21.50	.693	.367	1.814	.834	.338	8.17	6.12	47.3
061026	6-10	1155	24	.39	.20	26.20	.527	.377	.844	.988	.001	7.88	6.07	42.0
070915	7-08	1232	22			27.50	.711	.421	1.534	.682	.017	3.34	8.32	95.3



Sample Number	Date Sample Taken	Time Sample Taken	Secchi Disk Inches	Salinometer		Total P Inorganic P				NO <sub>2</sub> +NO <sub>3</sub>		NH <sub>3</sub> mg/l N	DO mg/l	TOC mg/l	TC mg/l	Chloro-phyll a µg/l
				Cond µmhos	Salinity 0/00	PO <sub>4</sub> mg/l	PO <sub>4</sub> mg/l	TKN mg/l	NO <sub>2</sub> -N mg/l	NO <sub>3</sub> -N mg/l						
70031243	3-12	0905	19	.54	.42	6.14	.996	.621	1.200	1.210	1.070	11.23				21.8
1915	3-19	1135	13	1.28	1.14	5.74	.664	.557	.841	1.090	.550	11.68				30.0
052024	5-19	1145	18			21.00	.607	.356	1.366	.867	.315	8.29		4.64	10.04	33.8
061027	6-10	1140	24	.39	.20	27.06	.642	.414	.937	.939	.001	6.14		4.95		51.8
70061028	6-10	1130	22	.46	.21	25.60	.723	.476	1.047	.815	.001	.56		6.29		66.0

Station 11 MC - Possum Point

Station 12 MC - Sandy Point



III SURVEY RESULTS  
1970

POTOMAC ESTUARY TRANSECTS  
ANNAPOLIS FIELD OFFICE

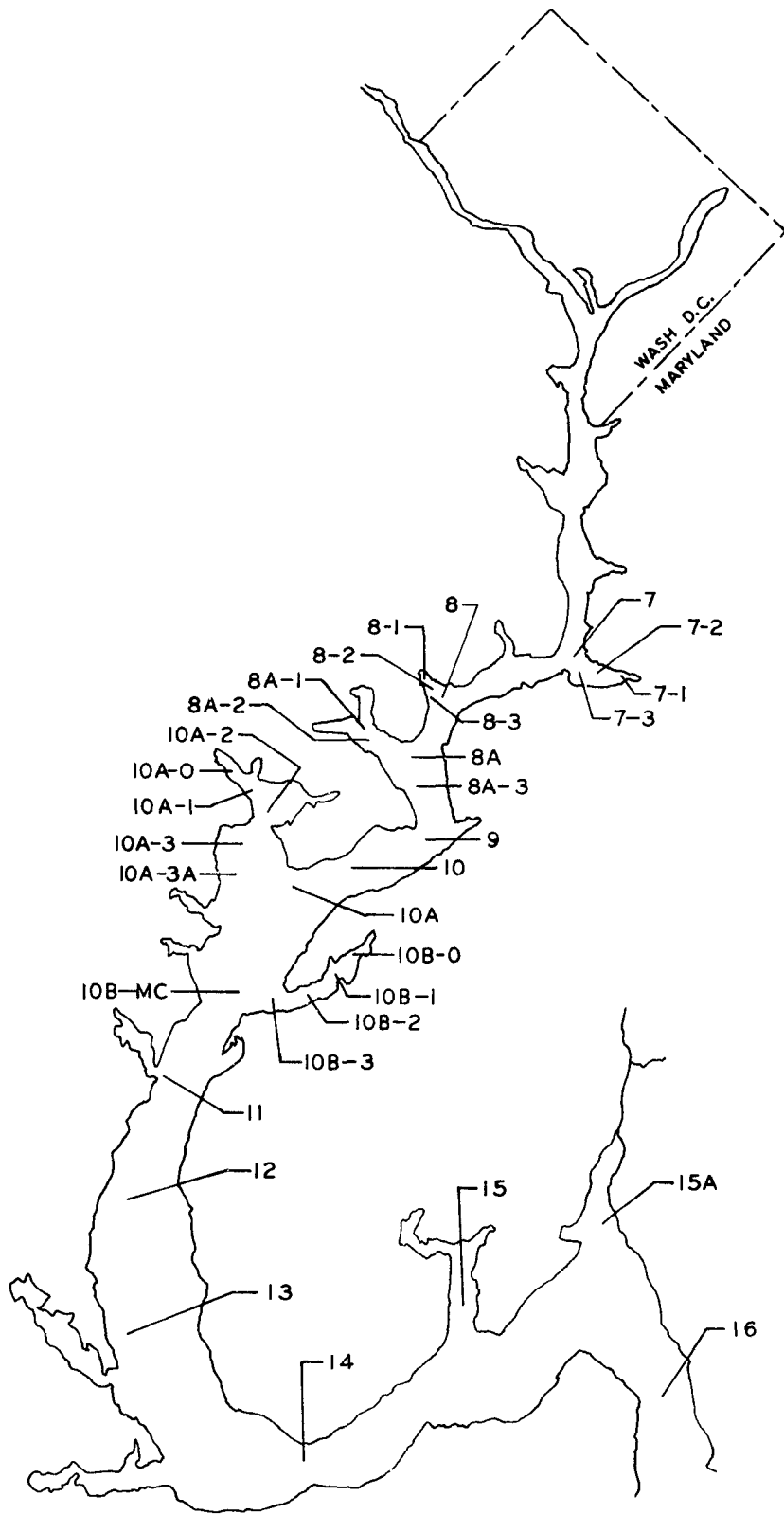
Sample Number	Date Taken	Time Sample Taken	Sample Depth Feet	Secchi Disk Inches	Salinometer Cond μmhos	Salinity O/00	Temp °C	Total P PO <sub>4</sub> mg/l	Inorganic P PO <sub>4</sub> mg/l	TKN mg/l	NO <sub>2</sub> +NO <sub>3</sub> N mg/l	DO mg/l	TOC mg/l	Chloro-phyll a μg/l
70022429	2-24	1035	Surface	20	.34	.26	3.85	.982	.683	.875	1.360	12.20	2.79	0.0
30			40		.30	.23	3.80	1.150	.642	1.180	1.380	12.09	1.87	
032329	3-23	1025	Surface	23			6.00	.982	.547	1.260	1.110	11.32	5.62	7.5
30			40				6.13	.913	.684	.950	1.130	11.41	4.56	
Station 7 - Piscataway "77"														
70022431	2-24	1055	Surface	20	.18	.10	3.98	1.120	.696	.779	1.380	12.03	1.61	3.0
32			20		.14	.10	3.83	1.070	.685	.869	1.490	11.99	1.43	
032331	3-23	1030	Surface	22			6.30	.949	.584	.996	1.090	11.35	5.13	8.3
32			20				5.96	1.200	.592	1.260	1.090	11.39	4.40	
Station 8 - Dogue Creek Fl. "67"														
70022433	2-24	1105	Surface	14	.18	.16	3.92	1.060	.616	.936	1.370	12.03	2.12	17.3
34			30		.18	.12	3.76	1.080	.638		1.370	12.08	2.07	
Station 8A - Gunston Cove Fl. "64"														
70022435	2-24	1120	Surface	15	.20	.18	3.88	1.080	.621	1.080	1.370	12.05	1.65	10.5
36			25		.13	.10	3.72	1.030	.645	1.370	1.490	12.13	3.20	
032333	3-23	1050	Surface	19			6.01	1.530	.815	1.360	1.050	10.55	6.10	27.0
34			25				5.96	1.960	.840	1.090	1.060	10.41	5.05	
Station 9 - Hallowing Point Fl. "59"														
70022437	2-24	1140	Surface	14	.16	.10	3.71	1.040	.674	.729	1.390	11.83	1.65	10.5
38			30		.14	.10	3.57	1.110	.660	1.370	1.490	11.64	2.00	
032335	3-23	1100	Surface	24	.92	.84	5.93	1.150	.825	1.230	1.140	10.28	4.05	17.3
36			40		.90	.83	5.80	1.490	.845	1.470	1.140	10.40	4.71	
Station 10 - Indian Head N "54"														
70022439	2-24	1150	Surface	16	.15	.10	3.67	1.110	.676	1.290	1.260	11.68	1.52	4.5
40			20		.15	.10	3.40	1.170	.675	.740	1.380	11.61	1.95	
Station 10A - Ocoquan Bay Fl. "51"														
70022441	2-24	1208	Surface	14	.16	.13	3.36	1.310	.725	1.320	1.310	11.65	3.27	12.0
42			25		.16	.13	3.16	1.150	.698	1.280	1.310	11.66	1.48	
Station 11 - Possum Point Fl. "44"														
70022443	2-24	1222	Surface	9	.11	.10	3.26	1.220	.580	1.050	1.260	11.87	3.61	12.8
44			20		.12	.10	3.00	1.150	.596	1.330	1.260	11.87	1.52	
Station 12 - Sandy Point N "40"														



Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Secchi Disk Inches	Salinometer		Total P		TKN mg/l N	NO <sub>2</sub> +NO <sub>3</sub>		NH <sub>3</sub> mg/l	DO mg/l	TOC mg/l	Chlorophyll a $\mu$ g/l
					Cond $\mu$ mcs	Salinity O/00	Temp °C	PO <sub>4</sub> mg/l		PO <sub>4</sub> mg/l	NO <sub>2</sub> -N				
70022445 46	2-24	1240	Surface 20	11	.58 .85	Station 13 - Smith Point Fl. "27"		.730 .717	1.160 1.030	1.140 1.170	.493 .431	11.82 11.68	2.76 3.95	10.5	
						2.67 3.83	.485 .467								
70022447 48	2-24	1253	Surface 35	14	2.90 4.02	Station 14 - Maryland Point Fl. "21"		.600 .502	1.310 .925	.936 .911	.422 .387	11.79 11.27	2.51 2.67	14.3	
						2.67 3.83	.377 .348								
70022449 50	2-24	1311	Surface 20	24	4.21 9.47	Station 15 - Nanjemoy Creek N "10"		.344 .302	.970 .751	.577 .481	.297 .264	11.49 10.42	2.58 2.15	8.3	
						3.91 9.50	.233 .227								
70022451 52	2-24	1326	Surface 40	34	6.55 11.10	Station 15A - Port Tobacco C "3"		.328 .289	.751 .763	.688 .386	.277 .193	11.47 10.78	2.51 2.58	12.0	
						6.24 11.30	.244 .183								
70022453 54	2-24	1337	Surface 40	48	7.35 11.87	Station 16 - 301 Bridge		.333 .290	.858 .847	.641 .589	.234 .242	11.65 10.88	2.64 2.46	11.3	
						7.08 12.11	.204 .161								







POTOMAC ESTUARY  
 EMBAYMENTS AND TRANSECTS  
 1970

