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## Biological description of Old Plantation Flats Deep Trough, a proposed dredged material disposal site: Interim report

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COMMONWEALTH of VIRGINIA

Virginia Institute of Marine Science

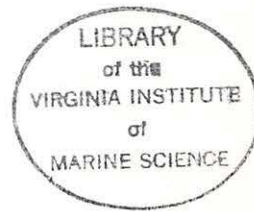
Gloucester Point, Virginia 23062

WILLIAM J. HARGIS, JR.  
DIRECTOR

Phone: (804) 642-2111

January 9, 1979

Dr. Robert L. Lippson  
Research Coordinator  
Environmental and Technical  
Services Division  
Environmental Assessment  
Branch  
National Marine Fisheries  
Service  
Oxford, MD 21654



Dear Dr. Lippson:

Enclosed is the Second Interim Report on the Old Plantation Flats Deep Trough survey, conducted during August and September 1978. This report includes the numbers and weights of fishes and invertebrates collected by travel and dredge.

I trust that you will forward copies of this information, or extracts of it, to interested and concerned individuals in the National Marine Fisheries Service, the U.S. Fish and Wildlife Services and the U.S. Army Corps of Engineers.

Sincerely,

*Walter Engel*

W. A. Van Engel  
Senior Marine Scientist

WAVE/nrp

Enclosure

-2-

Interim Report

to

U.S. Army Corps of Engineers, Baltimore District

Biological Description

of

Old Plantation Flats Deep Trough:

A Proposed Dredged Material Disposal Site.

by

Virginia Institute of Marine Science

and

School of Marine Science, College of  
William and Mary  
Gloucester Point, Virginia 23062

Prepared by: W. A. Van Engel, Senior Marine Scientist  
J. V. Merriner, Senior Marine Scientist  
F. J. Wojcik, Assistant Marine Scientist

January 9, 1979

The Old Plantation Trough site biological community was surveyed August 29-30, 1978. Bottom profiles were completed September 9, 1978. An Interim Report containing the procedures, list of stations, hydrographic data, bottom profiles, and species list was prepared and filed October 3, 1978.

This report contains tables of numbers and weights of fish and invertebrates collected during the August 1978 survey and thus concludes the report on the Summer Survey. Fish comprised 72.4% of the weight of the trawl catch (128.2 kg of fish; 48.8 kg of invertebrates; total 177 kg), and 80.4% of the number of animals (4055 fish; 988 invertebrates; total 5043 animals). There were 5504 invertebrates in the dredge catch (excluding ectoprocts), weighing 52.1 kg. No fish were taken with the dredge.

These data provide further evidence of a relatively high diversity and abundance of species of fishes and invertebrates in the Old Plantation Flats Deep Trough study area. As stated in our Interim Report of October 3, 1978, these data are indicative of a seasonally stable environment. On this basis, we still hold to our tentative conclusion: that the Old Plantation Flats Deep Trough should not be used as a spoil disposal site.

Table 1: Deep trough survey, Chesapeake Bay, Aug 29-30, 1978, hydrographic data. Dredge stations designated by letter D.

No.	Bay Station	Date	Time EST	Mean Depth m	Temp °C			Salinity ‰		D.O. mg/l		Tide <sup>1</sup>	Wind <sup>2</sup>		Secchi, m
					Air	S.	B.	S.	B.	S.	B.		Dir	Sp.	
1	1096	29 Aug	0909	13.7	28.1	-	-	-	-	-	-	5	225-6	-	
2	1036	29 Aug	1004	29.0	29.8	27.5	-	20.0	27.3	7.12	-	5	225-4	2.1	
3	1077	29 Aug	1145	45.7	29.9	27.8	26.6	-	28.0	7.42	3.92	5	225-3	2.2	
5	1064	29 Aug	1303	29.0	30.6	28.3	26.2	18.4	27.4	7.78	3.66	5	225-2	2.1	
8	1013	29 Aug	1415	21.9	30.7	28.8	26.6	17.5	26.6	7.52	3.14	5	225-2	2.0	
10	1029	29 Aug	1455	22.3	29.6	28.5	26.4	16.7	26.9	6.68	3.06	5	225-2	1.8	
12	1020	29 Aug	1556	18.9	31.9	28.4	26.4	16.3	26.0	7.96	3.06	5	225-2	2.0	
11	1038	29 Aug	1648	19.8	29.5	28.2	24.9	16.3	26.1	7.94	2.78	5	225-2	2.0	
15	1040	29 Aug	1740	23.8	30.1	28.2	26.5	16.3	25.8	8.06	2.86	5	225-1	1.8	
14	998	29 Aug	1805	18.3	30.0	28.0	26.6	16.2	26.3	7.68	3.14	5	225-2	1.9	
16	1002	30 Aug	0644	18.9	26.0	27.0	25.6	17.9	26.4	7.06	2.94	3	315-2	2.1	
17	1075	30 Aug	0758	20.4	28.5	28.2	26.2	16.4	26.1	7.54	2.88	3	315-2	2.5	
19	979	30 Aug	0850	29.0	28.5	28.5	25.6	16.2	25.8	7.28	2.92	3	99-99	2.4	
20	1010	30 Aug	0920	22.9	28.8	28.0	26.5	16.2	26.0	7.32	2.92	3	99-99	2.3	
21	1052 D	30 Aug	1035	18.0	30.3	-	-	-	-	-	-	4	99-99	-	
18	1032 D	30 Aug	1112	20.7	30.2	29.2	26.3	16.4	26.1	7.30	2.82	4	99-99	2.4	
17	1075 D	30 Aug	1138	21.3	31.0	-	-	-	-	-	-	4	99-99	-	
16	1002 D	30 Aug	1223	23.5	29.9	29.0	26.6	16.5	26.5	7.40	2.66	4	99-99	2.2	
15	1040 D	30 Aug	1242	22.3	32.2	-	-	-	-	-	-	5	99-99	-	
14	998 D	30 Aug	1302	19.8	31.3	30.4	27.0	16.7	25.2	7.16	3.08	5	99-99	2.1	
13	1069 D	30 Aug	1325	18.3	31.5	-	-	-	-	-	-	5	99-99	-	
11	1038 D	30 Aug	1400	19.8	30.0	29.8	27.1	16.5	26.1	7.66	3.96	5	99-99	2.3	
9	993 D	30 Aug	1437	19.8	30.3	29.2	26.7	16.5	26.6	7.86	3.24	5	99-99	1.7	
7	1057 D	30 Aug	1508	23.8	29.4	29.0	26.5	16.5	26.5	7.76	3.30	5	99-99	1.8	
6	1081 D	30 Aug	1531	25.9	30.1	28.8	26.2	16.6	26.5	8.62	3.42	5	99-99	1.0	
4	2000 D	30 Aug	1612	32.9	30.3	29.0	26.3	16.6	26.4	8.00	3.38	5	135-5	0.9	
1	1096 D	30 Aug	1642	21.9	30.8	28.8	26.5	17.9	25.3	7.78	3.68	5	135-6	1.5	
2	1036 D	30 Aug	1708	29.0	29.5	27.7	26.2	21.2	27.0	6.98	3.96	5	135-5	1.6	

<sup>2</sup>Wind direction and speed  
Degrees and m/sec  
99=variable and light

<sup>1</sup>Tide: coded  
3 = flood  
4 = high slack  
5 = early ebb

Table 2: Deep trough survey, Chesapeake Bay, August 29-30, 1978, trawl catch of fish, in grams or pounds (\*).

	Tow 1	Tow 2	Tow 3	Tow 5	Tow 8	Tow 10	Tow 11	Tow 12	Tow 14	Tow 15	Tow 16	Tow 17	Tow 19	Tow 20
<i>Raja eglanteria</i>		20	40	30	10		10	10	20	70				
<i>Dasyatis sayi</i>			50*			650			20*	400	825			
<i>Gymnura altavela</i>														
<i>Myliobatis freminvillei</i>							5*							
<i>Anchoa mitchilli</i>	2	2					2	10		55	3	2	15	2
<i>Synodus foetens</i>				75	70	40			130	30	15	10		
<i>Conger oceanicus</i>	18								15			10	30	18
<i>Urophycis regius</i>			65	50										
<i>Syngnathus fuscus</i>														3
<i>Centropristis striata</i>		3				40		20	4		12	100		
<i>Cynoscion regalis</i>	550	125	70	1500	3000	3600	1500	3000	1200	400	3300	4000	2500	750
<i>Leiostomus xanthurus</i>	750	3000	650	2000	3500	4000	800	5500	3600	800	9500	7800	580	750
<i>Menticirrhus americanus</i>	3	78	22	40						3	5		1	3
<i>Menticirrhus saxatilis</i>			23											
<i>Micropogonias undulatus</i>		350			410			160	110		1000	1800		
<i>Gobiosoma ginsburgi</i>										1				
<i>Prionotus carolinus</i>					10					40				
<i>Prionotus evolans</i>					10	25		20						
<i>Hypsoblennius hentzi</i>														
<i>Peprilus triacanthus</i>	25			3			1	3		6	5	10	5	25
<i>Rissola marginata</i>		50	20	10										
<i>Etropus microstomus</i>		1								1	4	35		
<i>Paralichthys dentatus</i>	15	60				360	180	800	180		1900	2500	250	15
<i>Scophthalmus aquosus</i>		25						5	15		170			
<i>Trinectes maculatus</i>	550	1000	1300	1500	600	1200	300	750	600	1200	900	140	950	550
<i>Symphurus plagiusa</i>						50				10	15			
<i>Sphoeroides maculatus</i>											5			
<i>Stephanolepis hispidus</i>			75								3			

Table 3: Deep trough survey, Chesapeake Bay, August 29-30, 1978, trawl catch of invertebrates, in grams or in pounds (\*).

	Tow 1	Tow 2	Tow 3	Tow 5	Tow 8	Tow 10	Tow 11	Tow 12	Tow 14	Tow 15	Tow 16	Tow 17	Tow 19	Tow 20
<b>Cnidarians</b>														
Astrangia danae													35	
<b>Mollusks</b>														
Busycon carica	400	310	600	300				35	450		7.2			
Busycon canaliculatum						300				800		400		
Polinices duplicatus							75		35	42	120	42		42
Lolliguncula brevis	53	22			1.2	24	37	54			9.2			
<b>Crustaceans, decapods</b>														
Penaeus aztecus	126		24		21	14	16.9		23		7.4	12.3		
Penaeus duorarum		9	10	26		16.2	7.9		12	8.8		6.7	225	
Trachypenaeus constrictus		.6												
Palaemonetes sp.		26	5	1					1					
Crangon septemspinosa		1	5				1		1	1	1	1	1	
Pagurus pollicaris	12.5	15	65		48		15	22		86	400	30	65	100
Hepatus pudibundus				1										
Callinectes sapidus	800	1200	500		900	725	450	280	300	500	1050	275	1250	1125
Ovalipes ocellatus			26							24	56	14.1		
Portunus gibbesii	56	190	118	326	123	172	56		165	190	39	202	80	76.9
Portunus spinimanus														
<b>Xanthids</b>														
Libinia dubia	80	7	180		35	4		20	20		8.7	29	.3	1
					130	230		110	120	120	600	520	7.9	3.1
<b>Crustaceans, stomatopods</b>														
Squilla empusa	77	61	67	59	10.5	160		108	78	149		31.4	26	33
<b>Other arthropods</b>														
Limulus polyphemus		15*	10*	2*	9*	3*		3*			3*	4.5*	2*	
<b>Echinoderms</b>														
Asterias forbesi		3700	1200	200	280	38		40						

Table 4: Deep trough survey, Chesapeake Bay, August 29-30, 1978, trawl catch of fish, in number of individuals.

	Tow 1	Tow 2	Tow 3	Tow 5	Tow 8	Tow 10	Tow 11	Tow 12	Tow 14	Tow 15	Tow 16	Tow 17	Tow 19	Tow 20
<i>Raja eglanteria</i>		1	2	2	1		1	1	3	4				
<i>Dasyatis sayi</i>			1			1			1	1	2			
<i>Gymnura altavela</i>	1													
<i>Myliobatis freminvillei</i>							1							
<i>Anchoa mitchilli</i>		1					1	5		25	3	2	13	2
<i>Synodus foetens</i>				1	1	1			2	1		1		
<i>Conger oceanicus</i>									1			1	2	2
<i>Urophycis regius</i>			1	1										
<i>Syngnathus fuscus</i>											1	2		
<i>Centropristis striata</i>		1				1		1	2		2	2		
<i>Cynoscion regalis</i>	15	44	28	45	306	443	271	52	59	60	143	508	27	23
<i>Leiostomus xanthurus</i>	25	69	11	27	67	119	31	172	197	58	144	171	17	14
<i>Menticirrhus americanus</i>	1		1	4						4	1		2	2
<i>Menticirrhus saxatilis</i>			2											
<i>Micropogonias undulatus</i>		1			1			1	1		3	5		
<i>Gobiosoma ginsburgi</i>										1				
<i>Prionotus carolinus</i>	1				1					1				
<i>Prionotus evolans</i>					1	1		1						
<i>Hypsoblennius hentzi</i>	1													
<i>Peprilus triacanthus</i>	4			2			1	1		3	1	2	1	4
<i>Rissola marginata</i>		2	1	1										
<i>Etropus microstomus</i>	12	1								1	2	1		
<i>Paralichthys dentatus</i>	10					2	2	5	1		2	1	1	1
<i>Scophthalmus aquosus</i>	1							1	1		2			
<i>Trinectes maculatus</i>	18	68	69	55	25	53	13	56	43	98	53	3	96	40
<i>Symphurus plagiusa</i>	1					2				1	1			
<i>Sphoeroides maculatus</i>											2			
<i>Stephanolepis hispidus</i>			2								1			



Table 5: Deep trough survey, Chesapeake Bay, August 29-30, 1978, trawl catch of invertebrates, in numbers of individuals.

	Tow 1	Tow 2	Tow 3	Tow 5	Tow 8	Tow 10	Tow 11	Tow 12	Tow 14	Tow 15	Tow 16	Tow 17	Tow 19	Tow 20
<b>Cnidarians</b>														
<u>Astrangia danae</u>													1	
<b>Mollusks</b>														
<u>Busycon carica</u>	1	1	2	1				1	1		1			
<u>Busycon canaliculatum</u>						1							1	
<u>Polinices duplicatus</u>							2		1	1	4	5		1
<u>Lolliguncula brevis</u>	3	1			1						1			
<b>Crustaceans, decapods</b>														
<u>Penaeus aztecus</u>	1		1		2	1	1		2		1	1	1	
<u>Penaeus duorarum</u>		1	4	1		1	1		1	1		1		
<u>Trachypenaeus constrictus</u>		1												
<u>Palaemonetes sp.</u>		19	3	1					1					
<u>Crangon septemspinosa</u>		1	18				1		1	1	1	1	1	1
<u>Pagurus pollicaris</u>	4	12	13		5	4	4	6		12	16	5	3	4
<u>Hepatus pudibundus</u>				1										
<u>Callinectes sapidus</u>	6	8	4		7	6	3	2	2	4	7	2	9	9
<u>Ovalipes ocellatus</u>		1								1	1	1		
<u>Portunus gibbesii</u>	41	48	17	46	25	29		15	22	31	7	35	15	14
<u>Portunus spinimanus</u>		2												
<u>Xanthids</u>		6		20	1		3	5			8	19	1	1
<u>Libinia dubia</u>	2		4		7	7		3	3	5	8	7	1	2
<b>Crustaceans, stomatopods</b>														
<u>Squilla empusa</u>	2	9	7	7	3	8		7	12	19	1	3	4	5
<b>Other arthropods</b>														
<u>Limulus polyphemus</u>		13	7	4	5	2		1			2	3	1	
<b>Echinoderms</b>														
<u>Asterias forbesi</u>		93	30	8	4	1		1						

Table 6: Deep trough survey, Chesapeake Bay, August 29-30, 1978, dredge catch of invertebrates, in grams or pounds (\*). Presence of species indicated by plus sign (+).

	Tow 1	Tow 2	Tow 4	Tow 6	Tow 7	Tow 9	Tow 11	Tow 13	Tow 14	Tow 15	Tow 16	Tow 17	Tow 18	Tow 21
<b>Cnidarians</b>														
<i>Ceriantheopsis americanus</i>					7		62	40	110	171	13	49	11	5
<b>Ectoprocts</b>														
<i>Electra crustulenta</i>	97	116	241	152	3627	4860	3471	267	133	561	1092	269	60	26
<b>Annelids</b>														
<i>Nereis succinea</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<b>Mollusks</b>														
<i>Anadara transversa</i>					53	.9		24.4	4.5	64	29.9	248	173	8.1
<i>Mytilus edulis</i>	64	75	122	91	3600	4600	3200	110	91	66.7	975	129	36	52
<i>Mercenaria mercenaria</i>									480					
<i>Mya arenaria</i>					4			10	1.4	6.9		2		2.2
<i>Busycon carica</i>	250	6400	500	400					300			145	313	
<i>Busycon canaliculatum</i>		400				480						202	211	
<i>Polinices duplicatus</i>					40		110	19.2	42				80	
<b>Crustaceans</b>														
<i>Pagurus pollicaris</i>		40												
<i>Callinectes sapidus</i>		420		135										
<i>Portunus gibbesii</i>		85												
<b>Xanthids</b>														
<i>Libinia dubia</i>					2							93	40	
<b>Crustaceans, stomatopods</b>														
<i>Squilla empusa</i>		24		7								9	6	
<b>Other arthropods</b>														
<i>Limulus polyphemus</i>		12*	1*				2*							
<b>Echinoderms</b>														
<i>Asterias forbesi</i>		3410												
<i>Cucumaria pulcherrima</i>	75		420	450	550	70								
<i>Micropholis atara</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Table 7: Deep trough survey. Chesapeake Bay, August 29-30, 1978, dredge catch of invertebrates, in number of individuals. Ectoprocts reported in grams (§).

	Tow 1	Tow 2	Tow 4	Tow 6	Tow 7	Tow 9	Tow 11	Tow 13	Tow 14	Tow 15	Tow 16	Tow 17	Tow 18	Tow 21
<b>Cnidarians</b>														
<i>Ceriantheopsis americanus</i>					1		3	4	2	5	2	4	2	2
<b>Ectoprocts</b>														
<i>Electra crustulenta</i>	97 <sup>§</sup>	116 <sup>§</sup>	241 <sup>§</sup>	152 <sup>§</sup>	3627 <sup>§</sup>	4860 <sup>§</sup>	3471 <sup>§</sup>	267 <sup>§</sup>	133 <sup>§</sup>	561 <sup>§</sup>	1092 <sup>§</sup>	269 <sup>§</sup>	60 <sup>§</sup>	26 <sup>§</sup>
<b>Annelids</b>														
<i>Nereis succinea</i>														
<b>Mollusks</b>														
<i>Anadara transversa</i>					4	2		8	3	5	3	13	12	3
<i>Mytilus edulis</i>	24	30	47	35	1500	1800	1236	40	35	23	374	43	14	18
<i>Mercenaria mercenaria</i>									1					
<i>Mya arenaria</i>					1			1	1	3		2		1
<i>Busycon carica</i>	1	21	2						2			2	2	
<i>Busycon canaliculatum</i>		1		1		1						1	1	
<i>Polinices duplicatus</i>					1		2	1	1				1	
<b>Crustaceans</b>														
<i>Pagurus pollicaris</i>		5												
<i>Callinectes sapidus</i>		3		1										
<i>Portunus gibbesii</i>		13												
xanthids													2	
<i>Libinia dubia</i>					1					1		1	1	
<b>Crustaceans, stomatopods</b>														
<i>Squilla empusa</i>	3			1								2	1	
<b>Other arthropods</b>														
<i>Limulus polyphemus</i>		9	1				1							
<b>Echinoderms</b>														
<i>Asterias forbesi</i>		87												
<i>Cucumaria pulcherrima</i>	2		6	4	8	2								
<i>Micropholis atara</i>														1