



## VIMS Shoreline Permit Database Impacts and Alterations Summary 1988 - 1992

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### Summary

The permitted impacts to tidal vegetated wetlands in Virginia for the period of 1988-1992 were approximately 18 acres per year.

The permitted impacts to tidal nonvegetated wetlands in Virginia for the period of 1988-1992 were approximately 21 acres per year.

A total of approximately 79.5 miles of riprap and approximately 53 miles of bulkhead were permitted over the five year period.

vide a number of new perspectives on the management process. First, it can help determine the effectiveness of management efforts by documenting the permitted losses of tidal wetlands. Secondly, it will allow an assessment of the cumulative impact of incremental wetland losses on the resource as a whole. Thirdly, the data are a critical baseline element necessary to assess the Commonwealth's relationship to the goal of "no net loss" of wetlands, a current management priority. Lastly, interpretation of these data may illuminate trends in construction activity or impacts requiring special management attention.

### Introduction

The management of wetland resources has always been hampered by the lack of knowledge regarding the rates of wetlands loss from permitted activities. These statistics have usually been the most intractable data to acquire because of the numerous agencies involved in the permit process, the frequent modifications of permit applications and the difficulties involved with ensuring the inclusion of all projects proposed. The development of this database which documents tidal wetland losses in Virginia will pro-

### Methods

This report summarizes data from 1988-1992 that were collected by personnel from the Wetlands Advisory Group at the Virginia Institute of Marine Science. It is almost always based on a visit to the site to assess the anticipated im-

impacts. Impacts to tidal wetlands are classified by date, locality, immediate water body, primary waterway, watershed, type and extent of proposed activity, and wetland community type. These data are entered into a computer database and a report is generated which summarizes

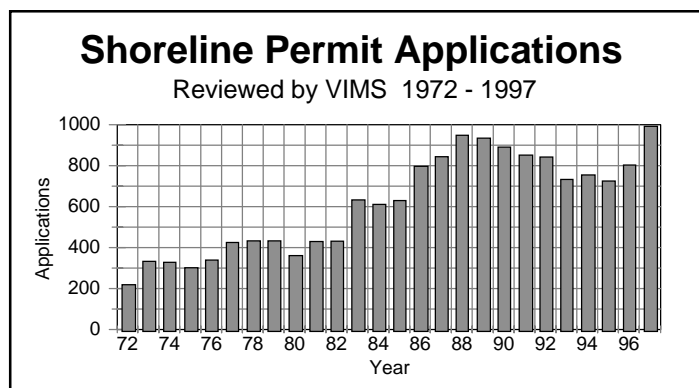
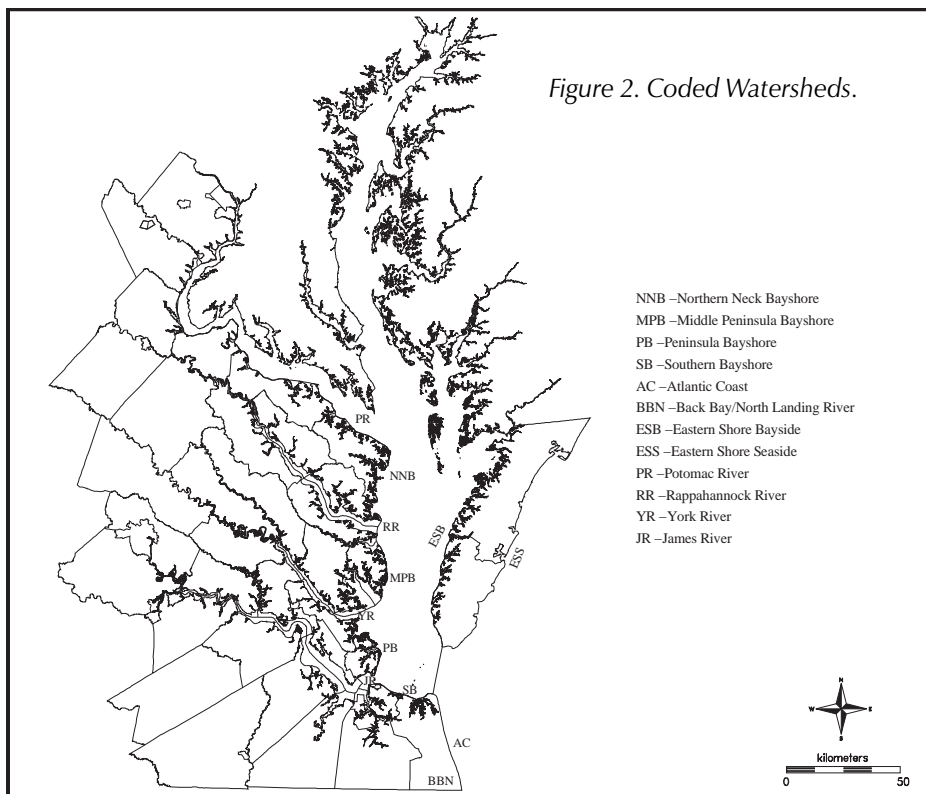


Figure 1.



proposed tidal wetland impacts by location and community type, and includes advisory comments about the project.

The data set for this time period is based on the year in which the application was received. These data are representative of some of the highest years of permit activity (Fig. 1, previous page).

The data are also organized according to a standardized set of watersheds which are depicted in Figure 2 to help simplify geographical interpretation.

## Tidewater Virginia Watersheds

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The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its subagencies or DEQ.

*Commonwealth's Declared Policy: "to preserve the wetlands and to prevent their despoliation and destruction..."*

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The impacts reported for the 1988-1992 data include both habitat lost to filling and habitat impacted but not lost to the system, such as the conversion of intertidal mudflat to subtidal bottom by dredging or conversion of a sand beach to intertidal riprap. Impacts to vegetated wetlands estimated in the database are based on those activities actually permitted by the local wetlands boards and the Virginia Marine Resources Commission.

The database has several limitations which should be taken into account when analyzing or interpreting the data. These permitted losses must be viewed in the context of natural changes from erosion and accretion as well as unpermitted activities which could involve larger or smaller areas than the losses reported here but are currently unquantified. In most instances, permitted projects are eventually constructed, however, there may be occasions where the projects are never constructed and the impacts never accrue to the environment. Additionally, the 1988-1992 database does not exclude projects approved by a locality or the state that may have been subsequently denied by the Corps of Engineers. It also does not account for any compensation which may have been required.

## Tidal wetlands impacts permitted in 1988 by watershed

### Vegetated Wetlands (square feet)

WS	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12	TOTAL
AC	0	0	0	0	0	0	0	0	0	0	0	0	0
BBN	0	625	0	50	0	0	0	0	0	0	0	850	1525
ESB	735	675	0	0	0	0	0	0	0	0	0	57428	58838
ESS	13530	765	0	1200	0	0	0	360	0	0	0	4250	20105
JR	8227	0	0	8560	1030	0	0	2375	0	0	1175	10479	31846
MPB	389	1717	0	250	0	0	0	0	0	0	0	0	2356
NNB	4920	246	0	150	0	0	0	0	0	0	0	586	5902
PB	1585	75	2300	1900	0	0	0	2550	0	0	0	4000	12410
PR	1324	205	10	116	60	0	0	1300	0	0	50	2982	6047
RR	3378	2456	8136	82	100	0	0	0	0	0	10000	4897	29049
SB	5406	5320	0	5033	0	0	0	10	0	0	0	950	16719
YR	560	77	0	0	8100	0	0	0	0	0	0	0	8737

### Non-vegetated Wetlands (square feet)

WS	TP13	TP14	TP15	TP16	TP17	TP18	TOTAL
AC	0	0	0	0	0	0	0
BBN	0	530	1350	1500	0	0	3380
ESB	2630	1520	3916	1120	0	0	9186
ESS	1440	5500	400	1821	0	0	9161
JR	66830	20326	34780	17826	0	0	139762
MPB	0	112715	11690	4064	0	0	128469
NNB	0	2120	16592	0	0	0	18712
PB	30150	4325	26963	6880	0	0	68318
PR	0	6900	64610	0	0	0	71510
RR	3819	30828	38586	178	0	0	73411
SB	0	18165	26421	156385	0	0	200971
YR	0	3053	770	927	0	0	4750

### Community Types

TP1	Saltmarsh Cordgrass
TP2	Saltmeadow Hay
TP3	Black Needlerush
TP4	Saltbush
TP5	Big Cordgrass
TP6	Cattail
TP7	Arrow Arum-Pickerelweed
TP8	ReedGrass
TP9	Yellow Pond Lily
TP10	Saltwort
TP11	Freshwater Mixed
TP12	Brackish Water Mixed
TP13	Intertidal Beach
TP14	Sand Flat
TP15	Sand/Mud Mix
TP16	Mud Flat
TP17	Intertidal Oyster Reef
TP18	Intertidal Riprap/Rubble

### Watershed (WS)

AC =	Atlantic Coast	NNB=	Northern Neck Bayshore
BBN=	Back Bay/North Landing River	PB =	Peninsula Bayshore
ESB=	Eastern Shore Bayside	PR =	Potomac River
ESS=	Eastern Shore Seaside	RR =	Rappahannock River
JR =	James River	SB =	Southern Bayshore
MPB=	Middle Peninsula Bayshore	YR =	York River

## Tidal wetlands impacts permitted in 1989 by watershed.

### Vegetated Wetlands (square feet)

WS	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12	TOTAL
AC	200	0	0	0	0	0	0	0	0	0	0	0	200
BBN	30	209	0	25	0	0	0	0	0	0	0	0	264
ESB	9270	84673	5277	102	0	0	0	0	0	0	0	2032	101354
ESS	12880	6534	0	660	0	0	0	710	0	0	0	0	20784
JR	12030	1173	25	1733	950	0	0	2068	54363	0	17056	139538	228936
MPB	6431	2354	77	100	0	0	0	0	0	0	0	0	8962
NNB	6110	202074	0	785	300	0	0	0	0	0	0	891	210160
PB	5894	38730	0	5152	0	0	0	650	0	0	450	150	51026
PR	2275	6490	605	3319	850	0	0	0	0	0	3995	5584	23118
RR	3090	3815	65	354	3004	0	0	0	0	0	50	8503	18881
SB	4108	7720	0	2415	6660	0	0	12704	0	0	0	65130	98737
YR	4585	130	0	45	280	0	0	280	0	0	0	0	5320

### Non-vegetated Wetlands (square feet)

WS	TP13	TP14	TP15	TP16	TP17	TOTAL
AC	0	0	40	0	0	40
BBN	0	1119	730	0	0	1849
ESB	215	30325	5947	6295	0	42782
ESS	130	4925	250	4160	0	9465
JR	500	36191	23071	128922	0	188684
MPB	0	12766	11565	612	0	24943
NNB	0	8664	27526	32560	0	68750
PB	472720	0	5730	17748	0	496198
PR	0	38523	36112	75	0	74710
RR	0	102647	36548	4047	0	143242
SB	1905	8050	5552	15433	0	30940
YR	0	2931	11671	530	0	15132

### Community Types

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TP2	Saltmeadow Hay
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## Tidal wetlands impacts permitted in 1990 by watershed.

### Vegetated Wetlands (square feet)

WS	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12	TOTAL
AC	230	0	0	0	0	0	0	0	0	0	0	0	230
BBN	0	265	50	0	0	0	0	100	0	0	69856	0	70271
ESB	769	0	180	100	0	0	0	20	0	0	0	0	1069
ESS	3516	700	0	620	0	0	0	1930	0	0	01568160	1574926	
JR	3558	4610	0	3799	85	0	0	15148	0	0	16986	14323	58509
MPB	415	50	0	193	0	0	0	0	0	0	0	20	678
NNB	13930	2692	4280	390	0	0	0	0	0	0	0	11590	32882
PB	2685	575	0	90	0	0	0	0	0	0	450	0	3800
PR	6568	1308	0	1930	0	0	2800	2200	0	0	3420	6648	24874
RR	5298	19382	281	944	110	650	0	0	0	0	0	480	27145
SB	1433	3337	0	3546	0	0	0	1000	0	0	0	660	9976
YR	6	126	20	310	0	0	0	0	0	0	182	332	976

### Non-vegetated Wetlands (square feet)

WS	TP13	TP14	TP15	TP16	TP17	TP18	TOTAL
AC	0	4783	0	0	0	0	4783
BBN	0	1802	2470	0	0	0	4272
ESB	1045	5545	4224	460	0	0	11274
ESS	116	0	68675	6884	0	0	75675
JR	1395	203820	99595	41788	0	0	346598
MPB	0	69084	17333	1927	600	0	88944
NNB	0	23624	79105	4656	0	0	107385
PB	0	1780	1200	8482	0	0	11462
PR	240	74994	743538	5380	0	0	824152
RR	0	74298	56872	1200	0	0	132370
SB	63235	46407	9035	12418	4480	0	135575
YR	0	2868	2511	3093	0	0	8472

### Community Types

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TP2	Saltmeadow Hay
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## Tidal wetlands impacts permitted in 1991 by watershed.

### Vegetated Wetlands (square feet)

WS	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12	TOTAL
AC	0	0	0	0	0	0	0	0	0	0	0	0	0
BBN	0	150	0	0	0	0	0	0	0	0	0	1780	1930
ESB	0	0	0	220	0	0	0	0	0	0	0	0	220
ESS	17159	130	0	0	0	0	0	70	0	0	0	75	17434
JR	663	700	300	766	160	0	0	240	0	0	1650	4978	9457
MPB	2516	268	20	0	0	0	0	0	0	0	0	80	2884
NNB	1250	1020	0	0	0	0	0	0	0	0	0	2590	4860
PB	2630	177	0	490	0	0	0	200	0	0	0	648	4145
PR	2555	750	0	110	0	0	0	0	0	0	4650	80	8145
RR	20	450	0	360	0	0	0	0	0	0	0	0	830
SB	394	574	0	1419	0	0	0	0	0	0	0	10130	12517
YR	1330	0	0	85	0	0	0	0	0	0	0	0	1415

### Non-vegetated Wetlands (square feet)

WS	TP13	TP14	TP15	TP16	TP17	TP18	TOTAL
AC	40000	0	0	76	0	0	40076
BBN	0	1520	5280	0	0	0	6800
ESB	0	40	2000	2226	0	0	4266
ESS	0	0	0	310	0	0	310
JR	9020	0	18847	1690	0	0	29557
MPB	133680	5892	11100	3800	0	0	154472
NNB	340	3783	1577	400	0	0	6100
PB	610	0	1280	1028	0	0	2918
PR	0	78435	3724	2859	0	0	85018
RR	0	30008	2028	0	0	0	32036
SB	20	5186	11622	1297	0	0	18125
YR	0	605	2425	0	0	0	3030

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## Tidal wetlands impacts permitted in 1992 by watershed.

### Vegetated Wetlands (square feet)

WS	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12	TOTAL
AC	0	300	0	300	0	0	0	0	0	0	0	0	600
BBN	0	0	0	0	0	0	0	0	0	0	37866	330	38196
ESB	2212	405	0	180	0	0	0	0	0	0	820000	180	822977
ESS	23300	330	0	120	20	0	20	0	0	0	0	1165	24955
JR	7867	400	50	5260	722	1120	0	3350	0	0	3990	25067	47826
MPB	7639	2500	20	630	0	0	0	0	0	0	0	12715	23504
NNB	1469	367	0	402	0	0	0	0	0	0	0	2104	4342
PB	2630	60080	0	1140	0	0	0	0	0	0	0	0	63850
PR	3488	50	20	95	120	0	0	0	0	0	816	1381	5970
RR	1292	1680	362	0	14	0	0	150	0	0	175	3904	7577
SB	1258	4980	0	5138	0	0	0	250	0	0	0	6594	18220
YR	1268	0	0	0	167	0	0	0	0	0	270	11837	13542

### Non-vegetated Wetlands (square feet)

WS	TP13	TP14	TP15	TP16	TP17	TP18	TOTAL
AC	0	9390	0	4641	0	0	14031
BBN	0	0	710	0	0	0	710
ESB	634	50910	1574	13198	0	238	66554
ESS	143400	4460	25516	9399	0	90	182865
JR	1013	11330	45428	6282	0	3912	67965
MPB	75	35979	16388	4440	0	1030	57912
NNB	7304	9777	11487	36	0	800	29404
PB	0	5	3608	4109	0	3750	11472
PR	17589	32473	4316	64	0	1220	55662
RR	16167	26290	34974	6130	0	0	83561
SB	300	1277	12233	12089	0	3050	28949
YR	10720	24324	7326	0	0	90	42460

### Community Types

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## Tidal wetlands impacts permitted in 1988-1992 by locality and wetlands category.

LOCALITY	Total Vegetated Wetlands (ft <sup>2</sup> )					Total Non-Vegetated Wetlands (ft <sup>2</sup> )				
	1988	1989	1990	1991	1992	1988	1989	1990	1991	1992
Accomack County	64913	110653	1575675	17654	834602	13187	20145	79263	4536	162330
Arlington	0	0	0	0	0	0	0	0	0	0
Caroline	0	0	0	0	0	70	0	0	0	0
Charles City County	1100	0	0	0	0	1900	1165	1020	3300	8300
Chesterfield County	0	0	0	0	120	1000	203	504	0	0
Chesapeake	12161	18044	32559	1070	31126	67864	87965	13400	2765	15044
Colonial Heights	0	54363	0	0	120	0	0	0	0	312
Essex County	15731	9135	140	0	0	22905	1020	12936	820	2882
Fairfax County	0	300	0	0	816	5010	9830	37071	0	1840
Fredericksburg	0	0	0	0	0	0	0	0	0	0
Gloucester County	591	1750	892	1895	13144	6003	12437	10386	13051	29865
Hampton	9680	36045	5653	3015	60336	31000	484300	22456	2289	1454
Henrico	0	0	0	0	0	950	2300	0	640	3000
Hopewell	0	0	0	0	0	35780	0	0	0	0
Isle of Wight County	1000	25025	100	860	200	800	400	1960	4150	2600
James City County	120	2047	186	1650	2220	4910	6847	64891	1465	7695
King George County	0	2430	985	0	0	240	725	1355	260	562
King & Queen County	0	0	182	0	12257	360	1316	400	0	6960
King William County	0	0	142	0	280	672	730	1249	0	156
Lancaster County	10519	10757	25441	860	4789	40330	139035	67171	31440	44363
Mathews County	1797	5804	128	1335	6201	107332	10782	62475	142001	21658
Middlesex County	1220	3698	1284	339	8886	28338	19446	31051	1831	61146
Northampton County	14030	11485	320	0	13330	5160	32102	7686	40	87089
New Kent County	50	0	0	0	200	830	250	140	1230	1320
Newport News	0	3990	520	40	2139	1560	2416	10920	150	2955
Norfolk	10240	19617	20859	2602	6998	25333	26115	257539	1185	25215
Northumberland Cnty.	9507	212942	39900	4795	5397	30556	88607	161292	7433	34034
City of Petersburg	0	0	0	0	0	0	0	0	0	0
Prince George	0	0	0	0	0	0	0	0	0	0
Poquoson	2250	11839	555	150	2685	6223	8709	1549	439	6210
Portsmouth	3916	104020	500	2400	909	2200	13538	31411	12482	1976
Prince William County	0	100	0	4650	0	15252	1540	502340	0	0
Richmond City	0	0	0	0	0	0	0	7620	0	0
Richmond County	885	619	1390	450	229	995	12427	52524	1484	4253
Spotsylvania County	0	0	0	0	0	0	0	0	0	0
Stafford County	60	1635	6220	0	0	5634	1525	154570	200	2200
Suffolk County	2228	1900	625	270	9980	100	6816	570	755	2230
Surry County	0	0	0	0	0	0	900	720	1220	240
Virginia Beach	18725	99621	80107	14372	50905	204811	65088	81007	64926	41713
Westmoreland County	3291	13701	9851	3060	2808	32740	34328	64853	81221	37172
Williamsburg	550	200	0	0	0	400	100	0	0	0
West Point	300	0	0	500	0	0	0	0	600	0
York County	8670	6022	1122	1870	882	27185	3628	8633	795	24771
<b>TOTAL</b>	193534	767742	1805336	63837	1071559	727630	1096735	1750962	382708	641545