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Public Awareness Survey Results Nonpoint Source Pollution Survey of the Delaware Estuary Coastal Zone and Lake Erie Coastal Zone

Prepared for: Pennsylvania Department of Environmental Resources

Coastal COASTAL NPS PROGRAM Zone

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Table of Contents

	Page
Introduction	1
Study Method	2
Study Findings	3
General Findings	3
Marinas / Recreational Boating	6
Forestry	8
Urban Sources	10
Hydromodification	12
Agriculture	14
Appendix A	
Appendix B	

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INTRODUCTION

Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 requires states with approved coastal zone management programs to address nonpoint source (NPS) pollution that impacts or threatens coastal waters by preparing Coastal NPS Control Plans. These plans should address the activities that the Environmental Protection Agency (EPA) identified as major contributors to water pollution. These activities include: forestry; boating/marina operations; hydromodification; urban sources; and, agriculture. In 1993, the EPA released state guidance that specifies management measures for controlling nonpoint source (NPS) pollution from these sources. The management measures reflect a range of practices that are economically feasible, environmentally sound, and encompass the best available technology for reducing pollutants.

Pennsylvania boasts two coastal zones. The 57 mile-long Delaware Estuary is located in southeastern Pennsylvania and includes 20 municipalities and three counties. It also contains the nation's fifth largest city - Philadelphia. The 63 mile-long Lake Erie Coastal Zone forms the northern rim of Erie County and includes ten municipalities. The eastern and western coastal zone boundaries are the New York and Ohio borders.

The Pennsylvania Department of Environmental Resources (PA DER) is in the process of establishing its Coastal NPS Control Program. In order to determine the extent of NPS pollution within each issue area and the degree to which EPA identified management measures are currently used, PA DER has surveyed agency representatives in the Delaware Estuary and Lake Erie Coastal Zones. The surveys asked the following questions:

- What nonpoint sources of pollution are the most significant within Pennsylvania's coastal zones;
- What management measures are already being implemented or encouraged in Pennsylvania;
- What nonpoint sources of pollution are currently not addressed within the Commonwealth; and,
- What are agencies doing to educate their constituency about NPS pollution and strategies for addressing NPS pollution?

AGENCY SURVEY

During July 1994, the Delaware Valley Regional Planning Commission (DVRPC) prepared surveys which were aimed at generating information from agencies which, because of their mission or location within the Lake Erie and Delaware Estuary Coastal Zones, were addressing NPS pollution issues. The NPS issue areas addressed in the survey were

those that were identified by the EPA as major contributors of water pollution.

A total of 175 surveys were mailed to public, private, non profit, and not for profit agencies whose sphere of influence affected either coastal zone. DVRPC made follow-up calls to agencies that had not returned a survey by the deadline. The final response rate was 41%, or 71 respondents.

Of those who responded, 75% represented Delaware Estuary concerns, 15% state-wide concerns, and, 10% Lake Erie concerns. A higher percentage of Delaware Estuary agencies received surveys due to the fact that a greater number of agencies are located within the Delaware Estuary watershed.

Study Method

Separate surveys were developed for each of the major nonpoint source issue areas. These include: agriculture; forestry; hydromodification; urban sources; and, recreational boating and marina operators. Agencies were selected because of their expertise in an issue area. In a few cases, more than one issue area was addressed by an agency.

The surveys were designed to garner information about awareness of the Coastal Nonpoint Control Program, perceptions of the severity of NPS pollution problems, and the measures that are currently being encouraged to prevent NPS pollution.

Survey Findings

Survey findings are compared among respondents from various issue areas and within each issue area. A word of caution, survey responses are reported in terms of percentages for ease of discussion and comparison. For issue areas in which the total number of returned responses is low, the conclusions are based on an unrepresentative sample and should be used with caution.

General Findings

Table I indicates that the respondents most likely to be familiar with the Coastal Nonpoint Control Program (Program) are recreational boaters and marina operators (73%). The high percentage of respondents acknowledging their awareness of the Program suggests that PA DER's initial effort to organize and educate recreational boaters and marina operators has been effective. The groups least likely to be aware of the Program are those who address urban and forestry issues. Only 39% of those representing urban concerns reported they were aware of the Program. Twenty percent of the forestry respondents were aware of the Program. The greatest number of private consultants were represented in the forestry group.

Table I

	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
Respondents familiar with the Coastal NPS Control Program?	46%	55%	73%	20%	50%	39%

Respondents representing forestry, agriculture, and marinas/boating tended to perceive NPS pollution within their issue areas as not as serious as other forms of NPS pollution (Table II). However, those who completed urban source and hydromodification surveys characterized these sources of NPS pollution as as serious as NPS pollution from other activities.

Table II

How does NPS pollution from your area of activity compare with NPS pollution from other activities?	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
More Serious	18%	22%	0%	0%	0%	32%
As Serious	41%	22%	13%	10%	67%	68%
Not as Serious	40%	56%	87%	80%	33%	0%

Note: Not all respondents answered this question.

Respondents primarily use newsletters, personal meetings, and providing information upon request to educate their members, constituents, or clients. (Table III). However, the preferred public education approach is through brochures (50%) and newsletter articles (50%). Respondents who represented agriculture and urban concerns were most likely to express interest in covering NPS issues in their newsletters. The majority of respondents appeared willing to support public education efforts by distributing NPS brochures and fact sheets.

Table III

What educational efforts have you initiated?	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
None	15%	0%	33%	30%	25%	6%
Brochures	31%	27%	27%	20%	25%	39%
Video/slide shows	25%	45%	7%	10%	25%	32%
Seminars/courses	28%	73%	20%	0%	25%	26%
Personal meetings	41%	73%	33%	40%	50%	32%
Information available upon request	37%	82%	7%	40%	25%	35%
Newsletter items	48%	82%	27%	10%	0%	65%
Fact sheets	20%	45%	7%	10%	25%	19%
Outreach	21%	27%	0%	10%	25%	32%
Other	11%	18%	13%	0%	0%	13%

With the exception of agriculture, most respondents reported that their members were at least somewhat aware of how land use practices affect water quality. The consensus among agriculture respondents was that their members were not aware of the connection between land use practices and water quality. (Table IV).

Table IV

How well informed do you think your members are about the effects of land practices on water quality?	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
Very	10%	0%	20%	20%	25%	3%
Somewhat	61%	36%	67%	70%	75%	61%
Not at all	30%	64%	13%	10%	0%	35%

Overall, respondents were interested in assisting PA DER with its NPS outreach efforts and 93% wanted information about management measures. (Tables V and VI).

Table V						
Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
Including information in mailings	45%	64%	60%	20%	25%	42%
Including information in your newsletter	62%	82%	60%	20%	25%	74%
Distributing NPS brochures and fact sheets	71%	60%	67%	60%	50%	84%
Organize workshops and seminars	15%	10%	7%	0%	0%	29%

Note: Not all respondents answered this question.

Table VI						
	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
Would you be interested in more information about management measures proposed under the Coastal NPS Control Program?	93%	82%	100%	90%	75%	97%

Eighty one percent of those who completed the survey indicated that they would attend a meeting to obtain more information about NPS pollution and the Coastal NPS Control Program. (Table VII). Interest among boaters/marina operators was overwhelming. Hydromodification respondents were much less enthusiastic than other groups.

Table VII						
	All Categories	Agriculture	Marinas/ Boating	Forestry	Hydro-modification	Urban
Would attend a NPS meeting	81%	73%	100%	80%	25%	83%

Note: Not all respondents answered this question.

Marinas and Recreational Boating

A total of 15 respondents completed and returned the marina and recreational boating survey - representing a response rate of 30%. The majority of respondents assessed the practices listed in Table VIII as not being significant sources of NPS pollution. The one source boaters generally cited as a significant or extremely significant source of NPS pollution was inadequate stormwater management systems.

Table VIII

On a scale of 1 to 5, to what extent do you think the following marina operations and boating practices contribute to NPS pollution in your area?	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Erosion along shoreline and inadequate bank stabilization	9	60%	1	7%	4	27%	1	7%	0	0%
Dredging activity	8	53%	3	20%	2	13%	0	0%	2	13%
Inadequate onshore collection systems (i.e. pump-out stations)	3	21%	4	29%	2	14%	2	14%	3	21%
Inadequate stormwater management systems	2	15%	2	15%	3	23%	0	0%	6	46%
Inadequate dry boat storage	9	64%	4	29%	1	7%	0	0%	0	0%
Lack of designated boat maintenance areas	7	50%	3	21%	2	14%	0	0%	2	14%
Fuel, oil or other toxic or hazardous substance spills	5	36%	2	14%	4	29%	1	7%	2	14%
Materials used in pier and dock systems	9	60%	5	33%	0	0%	0	0%	1	7%
Discharge of fish waste into water	10	71%	2	14%	1	7%	1	7%	0	0%
Use of environmentally damaging substances to clean boats in or near water	7	50%	4	29%	0	0%	2	14%	1	7%
Disposal of wastes from boats	6	43%	1	7%	3	21%	2	14%	2	14%
In-the-water hull cleaning	8	57%	3	21%	2	14%	0	0%	1	7%
Boating in areas of critical or sensitive habitat	8	57%	3	21%	2	14%	1	7%	0	0%

Note: 1 = not significant, 5 = extremely significant

When boaters and marina operators were asked to identify the NPS reduction practices that they have either implemented or encouraged, the ones most often mentioned were: clean up spills in a timely and diligent manner (80%), use pressure treated timber and concrete pilings for pier and dock construction (53%), gain access to deeper water by extending docks rather than dredging (53%) and, provide dry boat storage (53%). (Table IX). The practices least likely to be encouraged were the use of natural vegetation to stabilize shoreline (13%) and the promotion of proper fish waste management (13%).

Table IX

Which, if any, of the practices listed below, have you implemented or encouraged marina owners and operators or boaters to implement to prevent NPS pollution?	Yes	
	#	%
Use natural vegetation to stabilize shoreline	2	13%
Gain access to deeper water by extending docks rather than dredging	8	53%
Provide adequate pump-out services	4	27%
Install stormwater management systems with bypass or overflow systems	3	20%
Provide dry boat storage	8	53%
Designate boat maintenance areas	7	47%
Use pressure treated timber and concrete pilings for pier and dock construction	8	53%
Clean up spills in a timely and diligent manner	12	80%
Promote proper fish waste management	2	13%
Use phosphate-free and biodegradable detergents for boat washing	7	47%
Use tarps and vacuums to collect solid wastes produced by cleaning and repairing	5	33%
Vacuum or sweep up debris from boat maintenance on a regular basis	6	40%

Forestry

Within forestry, a total of 25 surveys were circulated. Ten respondents completed the survey and the response rate within this issue area was 40%. The activities most often identified as significant sources of NPS pollution were location of roads (90%), construction of access roads (80%), and design of roads (80%). The activities identified as insignificant sources of NPS pollution included: fuel spills (70%), prescribed fires (70%), mechanical tree planting (60%), landings for cable yarding equipment (60%), and application of pesticides and fertilizers (50%). (Table X).

Table X

On a scale of 1 to 5, to what extent do you think the following forestry activities contribute to NPS pollution in your area?	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Location of roads	1	10%	0	0%	5	50%	4	40%	0	0%
Design of roads	2	20%	0	0%	4	40%	3	30%	1	10%
Construction of access roads	2	20%	0	0%	4	40%	3	30%	1	10%
Erosion	3	30%	1	10%	2	20%	1	10%	3	30%
Groundskidding of logs	3	30%	1	10%	6	60%	0	0%	0	0%
Landings for cable yarding equipment	6	60%	1	10%	2	20%	1	10%	0	0%
Mechanical site preparation	4	40%	3	30%	2	20%	1	10%	0	0%
Prescribed fires	7	70%	2	20%	1	10%	0	0%	0	0%
Mechanical tree planting	6	60%	4	40%	0	0%	0	0%	0	0%
Application of pesticides and fertilizers	5	50%	1	10%	1	10%	3	30%	0	0%
Fuel spills	7	70%	0	0%	0	0%	2	20%	1	10%

Note: 1 = not significant, 5 = extremely significant.

Of the practices listed to prevent NPS pollution, foresters indicated that they encouraged their clients to implement most of them. However, foresters were less likely to encourage their clients to designate fuel areas and control the application of pesticides. (Table XI).

Table XI		
Which, if any, of the forestry practices listed below, have you encouraged loggers and landowners to implement in order to prevent the impacts of NPS pollution?	Yes	
	#	%
Identify and protect wetlands from logging activity	8	73%
Locate and design roads to reduce sources and transport of sediment	7	64%
Minimize erosion and sedimentation during road construction/reconstruction	6	55%
Use erosion and sediment control measures to prevent erosion during logging operations	8	73%
Conduct timber harvest based on consideration of regeneration	8	73%
Pre-plan skidtrails and landings to control erosion	7	64%
Conduct erosion control practices during site preparation	7	64%
Install forest tree plantations for the purpose of erosion control	4	36%
Establish permanent vegetative cover on critical areas	9	82%
Controlled application of pesticides and fertilizers	3	27%
Designate areas for petroleum storage and provide for dispensing and clean-up of spills	1	9%

Urban Sources

Sixty-nine surveys were sent to agencies that address urban sources of NPS pollution. With 31 respondents completing and returning the survey, a response rate of 45% was achieved. The activities that respondents classified as either very significant or extremely significant sources of NPS pollution consisted of: runoff from roads, highways, and bridges (74%), construction activity (68%), and household activities (58%). For the most part, respondents did not perceive runoff from parks and golf courses as a significant source of NPS pollution (50%). (Table XII).

Table XII

On a scale of 1 to 5, to what extent do the following contribute to NPS pollution?	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Construction activity	1	3%	2	6%	7	23%	10	32%	11	35%
Onsite sewage disposal systems	4	13%	7	23%	15	48%	2	6%	3	10%
Household activities (e.g. fertilizing, car washing, etc.)	2	6%	7	23%	4	13%	9	29%	9	29%
Roads, highways, and bridges	0	0%	0	0%	8	26%	8	26%	15	48%
Golf course/parks	3	10%	12	40%	8	27%	6	20%	1	3%
Service stations	3	10%	8	26%	12	39%	5	16%	3	10%

Note: 1 = not significant, 5 = extremely significant.

Procedures that survey respondents have encouraged their constituents to practice to prevent NPS pollution include: implementing programs to protect wetlands (81%), constructing comprehensive buffer systems for protecting sensitive areas (68%), and providing education about disposal and clean-up of household toxics (65%). Practices that are not as likely to be promoted by respondents are: providing information about managing pet wastes (10%) and supplying information about car and boat care (10%). (Table XIII).

Table XIII

Which, if any, of the practices listed below, have you encouraged to implement in order to prevent the impacts of NPS pollution?	Yes	
	#	%
Vegetative stabilization practices at construction sites	17	55%
Perimeter control practices at construction sites	14	45%
Traps and basins to capture runoff at construction sites	16	52%
Treatment system measures	9	29%
Highway siting away from wetlands and other critical resources	8	26%
Education about lawn management and landscaping	19	61%
Education about disposal and clean-up of household toxics	20	65%
Information about managing pet waste to minimize surface water runoff	3	10%
Information about car/boat care	3	10%
Measures to ensure proper treatment of wastewater effluent with onsite disposal systems	15	48%
Comprehensive buffer system for protecting environmentally sensitive areas	21	68%
Site design that minimizes impervious surfaces and reduces runoff	17	55%
Programs to protect wetlands (e.g. acquisition, restoration, education)	25	81%

Hydromodification

Of the 12 agencies contacted, only four responded to the hydromodification survey. The response rate within this issue area was 25%. Generally, respondents did not identify hydromodification activities as significant source of NPS pollution. In fact, respondents rated most of the activities listed as either not at all significant or not very significant. (Table XIV).

Table XIV

On a scale of 1 to 5, which do you think contribute to NPS pollution?	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Dredging	1	25%	2	50%	1	25%	0	0%	0	0%
Construction and operation of dams and levees	2	50%	1	25%	0	0%	1	25%	0	0%
Tidal flow restrictions (e.g. undersized culverts, tide gates, etc.	3	75%	1	25%	0	0%	0	0%	0	0%
Flow regime alterations (e.g. diversions, withdrawals)	3	75%	1	25%	0	0%	0	0%	0	0%
Breakwaters and wave barriers	3	75%	0	0%	0	0%	0	0%	1	25%
Excavation of uplands to increase water area	2	50%	0	0%	2	50%	0	0%	0	0%

Note: 1 = not significant, 5 = extremely significant.

The hydromodification activities most often encouraged by respondents were: sediment control through vegetative cover (50%), erosion control measures (50%), and, shoreline erosion control measures (50%). Practices not used or encouraged by the respondents included setback levees and compound channel design and practices to prevent impacts to fisheries. (Table XV).

Table XV		
Which, if any, of the hydromodification practices listed below, have you encouraged be implemented in order to prevent the impacts of NPS pollution?	Yes	
	#	%
Control sediment from overbank areas that flood by using vegetative cover	2	50%
Construct noneroding roadways to access sites within and near wetlands	1	25%
Utilize setback levees and compound-channel designs	0	0%
Implement site specific design to: reduce loss of ecosystem benefits, increase freshwater availability and/or decrease accelerated delivery of pollutants	1	25%
Implement practices to control erosion during construction and/or operation of dams and levees	2	50%
Adopt practices to prevent impacts to fisheries due to flow release and change in water temperature	0	0%
Minimize the loss of habitat due to dam and levee construction and operation	1	25%
Implement measures to prevent shoreline erosion	2	50%

Agriculture

With a 58% response rate, agriculture attained the highest response rate of any of the issue areas. Nineteen surveys were sent; eleven were returned. Eighty-two percent of the respondents identified erosion from cropland and application of nutrients to cropland as significant, very significant or extremely significant practices contributing to NPS pollution. Irrigation of cropland (82%) and land use for grazing (55%) were considered insignificant sources of NPS pollution by most respondents. (Table XVI).

Table XVI

On a scale of 1 to 5, which do you think contribute to NPS pollution?	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Erosion from cropland	1	9%	1	9%	4	36%	3	27%	2	18%
Animal access to streams	1	9%	5	45%	3	27%	1	9%	1	9%
Discharge of pollutants from animal facilities	2	18%	4	36%	4	36%	0	0%	1	9%
Application of nutrients to cropland	2	18%	0	0%	7	64%	1	9%	1	9%
Application of pesticides to cropland	3	27%	0	0%	3	27%	4	36%	1	9%
Land use for grazing	6	55%	4	36%	1	9%	0	0%	0	0%
Irrigation of cropland	9	82%	1	9%	1	9%	0	0%	0	0%

Note: 1 = not significant, 5 = extremely significant.

The practices that applicants were most likely to encourage were: managing pesticides and reducing excess use (73%) and limiting animal access to streams when necessary (73%). Controlling the rate, amount and time of irrigation was the practice least likely to be encouraged (9%). (Table XVII).

Table XVII		
Which, if any, of the agricultural practices listed below, have you encouraged farmers to implement in order to prevent the impacts of NPS pollution?	Yes	
	#	%
Implementing erosion and sediment controls	7	64%
Limiting animal access to streams when necessary	8	73%
Confined animal facilities	5	45%
Managing nutrients including the amount, form, place and time of application	6	55%
Managing agriculture pesticides and reducing excess use	8	73%
Implementing grazing management schemes to maintain vegetation & protect land from erosion	7	64%
Controlling the rate, amount and time of irrigation	1	9%
No till farming	7	64%

For more information about responses within each issue area, please consult Appendix A. Appendix B provides a listing of agencies that responded to the survey.

Appendix A

NPS Survey Results
All Categories

Total Responses:	71

Are you familiar with the Coastal NPS Control Program?

Yes	
#	%
33	46%

How do you think NPS pollution from your area of activity compares with NPS pollution from other activities?

	#	%	
More Serious	12	18%	***
As Serious	28	41%	***
Not as Serious	27	40%	***

What educational efforts have you initiated?

	Yes	
	#	%
None	11	15%
Brochures	22	31%
Video/slide shows	18	25%
Seminars/courses	20	28%
Personal meetings/meetings with land owners	29	41%
Information available upon request	26	37%
Newsletter items	34	48%
Fact sheets	14	20%
Outreach	15	21%
Other	8	11%

5c ***Which method do you think is best for providing your members with information about NPS pollution and the Coastal NPS Program?***

	Yes	
	#	%
Public meetings	22	31%
Brochures	35	49%
Video/slide shows	24	34%
Public service announcements	21	30%
Newsletter articles	36	51%
Other	16	23%

In general, how well informed do you think your members are about the effects of land practices on water quality?

Very		Somewhat		Not at all	
#	%	#	%	#	%
7	9.9%	43	61%	21	29.6%

7 ***Would you be willing to provide PA DER with any of the following?***

	Yes	
	#	%
Membership list	23	32%
Educational materials	18	25%

All Categories

8 ***Would you be interested in more information about the management measures proposed under the Coastal NPS Control Program?***

Yes	
#	%
66	93%

9 ***Would you be willing to attend an informational meeting that addresses the coastal NPS Control Program's management measures?***

Yes		
#	%	
55	81%	***

10 ***Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:***

	Yes		
	#	%	
Including information in your routine mailings	32	45%	
Including information in your newsletter	44	62%	
Distributing NPS pollution and Coastal NPS Control Program brochures and fact sheets	50	71%	*
Organizing workshops and seminars	10	15%	****

NOTE: * indicates that averages were based on 70 responses instead of 71.
NOTE: *** indicates that averages were based on 68 responses instead of 71.
NOTE: **** indicates that averages were based on 67 responses instead of 71.

NPS Survey Results
Marinas and Recreational Boating

Total Responses:	15

1 ***Are you familiar with the Coastal NPS Control Program?***

Yes	
#	%
11	73%

2 ***On a scale of 1 to 5, to what extent do you think the following marina operations and boating practices contribute to NPS pollution in your area?***

1 = not significant — 5=extremely significant

	1		2		3		4		5		
	#	%	#	%	#	%	#	%	#	%	
Erosion along shoreline and inadequate bank stabilization	9	60%	1	7%	4	27%	1	7%	0	0%	
Dredging activity	8	53%	3	20%	2	13%	0	0%	2	13%	
Inadequate onshore collection systems (i.e. pump–out stations)	3	21%	4	29%	2	14%	2	14%	3	21%	*
Inadequate stormwater management systems	2	15%	2	15%	3	23%	0	0%	6	46%	**
Inadequate dry boat storage	9	64%	4	29%	1	7%	0	0%	0	0%	*
Lack of designated boat maintenance areas	7	50%	3	21%	2	14%	0	0%	2	14%	*
Fuel, oil or other toxic or hazardous substance spills	5	36%	2	14%	4	29%	1	7%	2	14%	*
Materials used in pier and dock systems	9	60%	5	33%	0	0%	0	0%	1	7%	
Discharge of fish waste into water	10	71%	2	14%	1	7%	1	7%	0	0%	*
Use of environmentally damaging substances to clean boats in or near water	7	50%	4	29%	0	0%	2	14%	1	7%	*
Disposal of wastes from boats	6	43%	1	7%	3	21%	2	14%	2	14%	*
In–the–water hull cleaning	8	57%	3	21%	2	14%	0	0%	1	7%	*
Boating in areas of critical or sensitive habitat	8	57%	3	21%	2	14%	1	7%	0	0%	*

3 ***Which, if any, of the practices listed below, have you implemented or encouraged marina owners and operators or boaters to implement to prevent NPS pollution?***

	Yes	
	#	%
Use natural vegetation to stabilize shoreline	2	13%
Gain access to deeper water by extending docks rather than dredging	8	53%
Provide adequate pump–out services	4	27%
Install stormwater management systems with bypass or overflow systems	3	20%
Provide dry boat storage	8	53%
Designate boat maintenance areas	7	47%
Use pressure treated timber and concrete pilings for pier and dock construction	8	53%
Clean up spills in a timely and diligent manner	12	80%
Promote proper fish waste management	2	13%
Use phosphate–free and biodegradable detergents for boat washing	7	47%
Use tarps and vacuums to collect solid wastes produced by cleaning and repairing	5	33%
Vacuum or sweep up debris from boat maintenance on a regular basis	6	40%

4 ***How do you think NPS pollution from marina operations and recreational boating compares with NPS pollution from other activities?***

	#	%
More Serious	0	0%
As Serious	2	13%
Not as Serious	13	87%

5a ***What educational efforts have you initiated?***

	Yes #	Yes %
None	5	33%
Brochures	4	27%
Video/slide shows	1	7%
Seminars/courses	3	20%
Personal meetings/meetings with land owners	5	33%
Information available upon request	1	7%
Newsletter items	4	27%
Fact sheets	1	7%
Outreach	0	0%
Other	2	13%

5c ***Which method do you think is best for providing your members with information about NPS pollution and the Coastal NPS Program?***

	Yes #	Yes %
Public meetings	4	27%
Brochures	12	80%
Video/slide shows	4	27%
Public service announcements	4	27%
Newsletter articles	7	47%
Other	2	13%

6a ***In general, how well informed do you think your constituency is about the effects of land practices on water quality?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
3	20%	10	67%	2	13.3%

6b ***How well informed do you think your constituency is about the effects of land practices on the water quality of the Delaware Estuary or Lake Erie?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
4	27%	9	60%	2	13.3%

7 ***Would you be willing to provide PA DER with any of the following?***

	Yes #	Yes %
Membership list	5	33%
Educational materials	3	20%

8 ***Would you be interested in more information about the management measures proposed under the Coastal NPS Control Program?***

Yes #	Yes %
15	100%

9 ***Would you be willing to attend an informational meeting that addresses the coastal NPS Control Program's management measures?***

Yes #	Yes %	
14	100%	*

10 ***Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:***

	Yes #	Yes %	
Including information in your routine mailings	9	60%	
Including information in your newsletter	9	60%	
Distributing NPS pollution and Coastal NPS Control Program brochures and fact sheets	10	67%	
Organizing workshops and seminars	1	7%	*

NOTE: * indicates that averages were based on 14 responses instead of 15.
NOTE: * indicates that averages were based on 13 responses instead of 15.

NPS Survey Results
Agriculture

Total Responses:	11

1 ***Are you familiar with the Coastal NPS Control Program?***

Yes	
#	%
6	55%

2 ***On a scale of 1 to 5, to what extent do you think the following agricultural practices contribute to NPS pollution in your area?***

1 = not significant — 5=extremely significant

	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Erosion from cropland	1	9%	1	9%	4	36%	3	27%	2	18%
Animal access to streams	1	9%	5	45%	3	27%	1	9%	1	9%
Discharge of pollutants from animal facilities	2	18%	4	36%	4	36%	0	0%	1	9%
Application of nutrients to cropland	2	18%	0	0%	7	64%	1	9%	1	9%
Application of pesticides to cropland	3	27%	0	0%	3	27%	4	36%	1	9%
Land use for grazing	6	55%	4	36%	1	9%	0	0%	0	0%
Irrigation of cropland	9	82%	1	9%	1	9%	0	0%	0	0%

Which, if any, of the agricultural practices listed below, have you encouraged farmers to implement in order to prevent the impacts of NPS pollution?

	Yes	
	#	%
Implementing erosion and sediment controls	7	64%
Limiting animal access to streams when necessary	8	73%
Confined animal facilities	5	45%
Managing nutrients including the amount, form, place and time of application	6	55%
Managing agriculture pesticides and reducing excess use	8	73%
Implementing grazing management schemes to maintain vegetation & protect land from erosion	7	64%
Controlling the rate, amount and time of irrigation	1	9%
No till farming	7	64%

How do you think NPS pollution from agriculture compares with NPS pollution from other activities?

	#	%	
More Serious	2	22%	**
As Serious	2	22%	**
Not as Serious	5	56%	**

5a ***What educational efforts have you initiated?***

	Yes	
	#	%
None	0	0%
Brochures	3	27%
Video/slide shows	5	45%
Seminars/courses	8	73%
Personal meetings/meetings with land owners	8	73%
Information available upon request	9	82%
Newsletter items	9	82%
Fact sheets	5	45%
Outreach	3	27%
Other	2	18%

5c ***Which method do you think is best for providing your members with information about NPS pollution and the Coastal NPS Program?***

	Yes #	Yes %
Public meetings	4	36%
Brochures	3	27%
Video/slide shows	3	27%
Public service announcements	3	27%
Newsletter articles	5	45%
Other	1	9%

6a ***In general, how well informed do you think your constituency is about the effects of land practices on water quality?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
0	0.0%	4	36%	7	63.6%

6b ***How well informed do you think your constituency is about the effects of land practices on the water quality of the Delaware Estuary or Lake Erie?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
0	0.0%	1	9%	10	90.9%

7 ***Would you be willing to provide PA DER with any of the following?***

	Yes #	Yes %
Membership list	2	18%
Educational materials	4	36%

8 ***Would you be interested in more information about the management measures proposed under the Coastal NPS Control Program?***

Yes #	Yes %
9	82%

9 ***Would you be willing to attend an informational meeting that addresses the coastal NPS Control Program's management measures?***

Yes #	Yes %
8	73%

10 ***Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:***

	Yes #	Yes %	
Including information in your routine mailings	7	64%	
Including information in your newsletter	9	82%	
Distributing NPS pollution and Coastal NPS Control Program brochures and fact sheets	6	60%	*
Organizing workshops and seminars	1	10%	*

NOTE: * indicates that averages were based on 10 responses instead of 11.
NOTE: ** indicates that averages were based on 9 responses instead of 11.

NPS Survey Results
Urban

Total Responses:	31

1 ***Are you familiar with the Coastal NPS Control Program?***

Yes	
#	%
12	39%

2 ***On a scale of 1 to 5, to what extent do you think the following activities contribute to NPS pollution in your area?***

1 = not significant 5=extremely significant

	1		2		3		4		5		
	#	%	#	%	#	%	#	%	#	%	
Construction activity	1	3%	2	6%	7	23%	10	32%	11	35%	
Onsite sewage disposal systems	4	13%	7	23%	15	48%	2	6%	3	10%	
Household activities (e.g. fertilizing, car washing, etc.)	2	6%	7	23%	4	13%	9	29%	9	29%	
Roads, highways, and bridges	0	0%	0	0%	8	26%	8	26%	15	48%	
Golf course/parks	3	10%	12	40%	8	27%	6	20%	1	3%	*
Service stations	3	10%	8	26%	12	39%	5	16%	3	10%	

Which, if any, of the practices listed below, have you encouraged to implement in order to prevent the impacts of NPS pollution?

	Yes	
	#	%
Vegetative stabilization practices at construction sites	17	55%
Perimeter control practices at construction sites	14	45%
Traps and basins to capture runoff at construction sites	16	52%
Treatment system measures	9	29%
Highway siting away from wetlands and other critical resources	8	26%
Education about lawn management and landscaping	19	61%
Education about disposal and clean-up of household toxics	20	65%
Information about managing pet waste to minimize surface water runoff	3	10%
Information about car/boat care	3	10%
Measures to ensure proper treatment of wastewater effluent with onsite disposal systems	15	48%
Comprehensive buffer system for protecting environmentally sensitive areas	21	68%
Site design that minimizes impervious surfaces and reduces runoff	17	55%
Programs to protect wetlands (e.g. acquisition,restoration, education)	25	81%

4 ***How do you think NPS pollution from urban activities compares with NPS pollution from other activities?***

	#	%
More Serious	10	32%
As Serious	21	68%
Not as Serious	0	0%

5a ***What educational efforts have you initiated?***

	Yes	
	#	%
None	2	6%
Brochures	12	39%
Video/slide shows	10	32%
Seminars/courses	8	26%
Personal meetings/meetings with land owners	10	32%
Information available upon request	11	35%
Newsletter items	20	65%
Fact sheets	6	19%
Outreach	10	32%
Other	4	13%

5c ***Which method do you think is best for providing your members with information about NPS pollution and the Coastal NPS Program?***

	Yes #	Yes %
Public meetings	11	35%
Brochures	14	45%
Video/slide shows	14	45%
Public service announcements	13	42%
Newsletter articles	17	55%
Other	6	19%

6a ***In general, how well informed do you think the community is about the effects of land practices on water quality?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
1	3.2%	19	61%	11	35%

6b ***How well informed do you think the community is about the effects of land practices on the water quality of the Delaware Estuary or Lake Erie?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
0	0.0%	18	58%	13	42%

7 ***Would you be willing to provide PA DER with any of the following?***

	Yes #	Yes %	
Membership list	14	48%	**
Educational materials	9	30%	*

8 ***Would you be interested in more information about the management measures proposed under the Coastal NPS Control Program?***

Yes #	Yes %
30	97%

9 ***Would you be willing to attend an informational meeting that addresses the coastal NPS Control Program's management measures?***

Yes #	Yes %	
24	83%	**

10 ***Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:***

	Yes #	Yes %	
Including information in your routine mailings	13	42%	
Including information in your newsletter	23	74%	
Distributing NPS pollution and Coastal NPS Control Program brochures and fact sheets	26	84%	
Organizing workshops and seminars	8	29%	**

NOTE: * indicates that averages were based on 30 responses instead of 31.
NOTE: ** indicates that averages were based on 29 responses instead of 31.

NPS Survey Results
Forestry

Total Responses:	10

1 ***Are you familiar with the Coastal NPS Control Program?***

Yes	
#	%
2	20%

2 ***On a scale of 1 to 5, to what extent do you think the following forestry activities contribute to NPS pollution in your area?***

1 = not significant — 5=extremely significant

	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Location of roads	1	10%	0	0%	5	50%	4	40%	0	0%
Design of roads	2	20%	0	0%	4	40%	3	30%	1	10%
Construction of access roads	2	20%	0	0%	4	40%	3	30%	1	10%
Erosion	3	30%	1	10%	2	20%	1	10%	3	30%
Groundskidding of logs	3	30%	1	10%	6	60%	0	0%	0	0%
Landings for cable yarding equipment	6	60%	1	10%	2	20%	1	10%	0	0%
Mechanical site preparation	4	40%	3	30%	2	20%	1	10%	0	0%
Prescribed fires	7	70%	2	20%	1	10%	0	0%	0	0%
Mechanical tree planting	6	60%	4	40%	0	0%	0	0%	0	0%
Application of pesticides and fertilizers	5	50%	1	10%	1	10%	3	30%	0	0%
Fuel spills	7	70%	0	0%	0	0%	2	20%	1	10%

3 ***Which, if any, of the forestry practices listed below, have you encouraged loggers and landowners to implement in order to prevent the impacts of NPS pollution?***

	Yes	
	#	%
Identify and protect wetlands from logging activity	8	80%
Locate and design roads to reduce sources and transport of sediment	7	70%
Minimize erosion and sedimentation during road construction/reconstruction	6	60%
Use erosion and sediment control measures to prevent erosion during logging operations	8	80%
Conduct timber harvest based on consideration of regeneration	8	80%
Pre-plan skidtrails and landings to control erosion	7	70%
Conduct erosion control practices during site preparation	7	70%
Install forest tree plantations for the purpose of erosion control	4	40%
Establish permanent vegetative cover on critical areas	9	90%
Controlled application of pesticides and fertilizers	3	30%
Designate areas for petroleum storage and provide for dispensing and clean-up of spills	1	10%

4 ***How do you think NPS pollution from forestry operations compares with NPS pollution from other activities?***

	#	%
More Serious	0	0%
As Serious	1	10%
Not as Serious	8	80%

5a ***What educational efforts have you initiated?***

	Yes #	Yes %
None	3	30%
Brochures	2	20%
Video/slide shows	1	10%
Seminars/courses	0	0%
Personal meetings/meetings with land owners	4	40%
Information available upon request	4	40%
Newsletter items	1	10%
Fact sheets	1	10%
Outreach	1	10%
Other	0	0%

5c ***Which method do you think is best for providing your members with information about NPS pollution and the Coastal NPS Program?***

	Yes #	Yes %
Public meetings	2	20%
Brochures	4	40%
Video/slide shows	2	20%
Public service announcements	1	10%
Newsletter articles	5	50%
Other	6	60%

6a ***In general, how well informed do you think your members, or the landowners with whom you work, is about the effects of land practices on water quality?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
2	20.0%	7	70%	1	10.0%

6b ***How well informed do you think your members, or the land owners with whom you work, are about the effects of land practices on the water quality of the Delaware Estuary or Lake Erie?***

Very #	Very %	Somewhat #	Somewhat %	Not at all #	Not at all %
2	20.0%	5	50%	3	30.0%

7 ***Would you be willing to provide PA DER with any of the following?***

	Yes #	Yes %
Membership list	2	20%
Educational materials	0	0%

8 ***Would you be interested in more information about the management measures proposed under the Coastal NPS Control Program?***

Yes #	Yes %
9	90%

9 ***Would you be willing to attend an informational meeting that addresses the coastal NPS Control Program's management measures?***

Yes #	Yes %
8	80%

10 ***Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:***

	Yes #	Yes %
Including information in your routine mailings	2	20%
Including information in your newsletter	2	20%
Distributing NPS pollution and Coastal NPS Control Program brochures and fact sheets	6	60%
Organizing workshops and seminars	0	0%

NPS Survey Results
Hydromodification

Total Responses:	4

	Yes	
	#	%
Are you familiar with the Coastal NPS Control Program?	2	50%

1 = not signigicant — 5=extremely significant

On a scale of 1 to 5, to what extent do you think the following activities contribute to NPS pollution in your area?	1		2		3		4		5	
	#	%	#	%	#	%	#	%	#	%
Dredging	1	25%	2	50%	1	25%	0	0%	0	0%
Construction and operation of dams and levees	2	50%	1	25%	0	0%	1	25%	0	0%
Tidal flow restrictions (e.g. undersized culverts, tide gates	3	75%	1	25%	0	0%	0	0%	0	0%
Flow regime alterations (e.g. diversions, withdrawals)	3	75%	1	25%	0	0%	0	0%	0	0%
Breakwaters and wave barriers	3	75%	0	0%	0	0%	0	0%	1	25%
Excavation of uplands to increase water area	2	50%	0	0%	2	50%	0	0%	0	0%

Which, if any, of the hydromodification practices listed below, have you encouraged be implemented in order to prevent the impacts of NPS pollution?	Yes	
	#	%
Control sediment from overbank areas that flood by using vegetative cover	2	50%
Construct noneroding roadways to access sites within and near wetlands	1	25%
Utilize setback levees and compound–channel designs	0	0%
Implement site specific design to: reduce loss of ecosystem benefits, increase freshwater availability and/or decrease accelerated delivery of pollutants	1	25%
Implement practices to control erosion during construction and/or operation of dams and levees	2	50%
Adopt practices to prevent impacts to fisheries due to flow release and change in water temperature	0	0%
Minimize the loss of habitat due to dam and levee construction and operation	1	25%
Implement measures to prevent shoreline erosion	2	50%

How do you think NPS pollution from hydromodification compares with NPS pollution from other activities?	#	%	
More Serious	0	0%	*
As Serious	2	67%	*
Not as Serious	1	33%	*

What educational efforts have you initiated?	Yes	
	#	%
None	1	25%
Brochures	1	25%
Video/slide shows	1	25%
Seminars/courses	1	25%
Personal meetings/meetings with land owners	2	50%
Information available upon request	1	25%
Newsletter items	0	0%
Fact sheets	1	25%
Outreach	1	25%
Other	0	0%

5c ***Which method do you think is best for providing your members with information about NPS pollution and the Coastal NPS Program?***

	Yes	
	#	%
Public meetings	1	25%
Brochures	2	50%
Video/slide shows	1	25%
Public service announcements	0	0%
Newsletter articles	2	50%
Other	1	25%

6a ***In general, how well informed do you think your members are about the effects of land practices on water quality?***

Very		Somewhat		Not at all	
#	%	#	%	#	%
1	25.0%	3	75%	0	0.0%

6b ***How well informed do you think your members are about the effects of land practices on the water quality of the Delaware Estuary or Lake Erie?***

Very		Somewhat		Not at all	
#	%	#	%	#	%
1	25.0%	3	75%	0	0.0%

7 ***Would you be willing to provide PA DER with any of the following?***

	Yes	
	#	%
Membership list	0	0%
Educational materials	2	50%

8 ***Would you be interested in more information about the management measures proposed under the Coastal NPS Control Program?***

Yes	
#	%
3	75%

9 ***Would you be willing to attend an informational meeting that addresses the coastal NPS Control Program's management measures?***

Yes	
#	%
1	25%

10 ***Would you be willing to participate in public education/outreach about NPS pollution and the Coastal NPS Control Program by:***

	Yes	
	#	%
Including information in your routine mailings	1	25%
Including information in your newsletter	1	25%
Distributing NPS pollution and Coastal NPS Control Program brochures and fact sheets	2	50%
Organizing workshops and seminars	0	0%

NOTE: * indicates that averages were based on 3 responses instead of 4.

Appendix B

Name	Phone #	Agency	Area	NPS Contact *
Forestry				
CAPON, ROB	717-933-8377	PROGRESSIVE FOREST RESOURCES, INC	GP	
GREEN, DUANE	610-696-1577	GREEN LINE CONSULTANTS	GP	
HOBAUGH, MAURICE	610-582-4928	(CONSULTANT FORESTER/SURVEYOR)	GP	
MASSEY, ALBERY	814-452-2046	LANDSCAPE ARCHITECT	EC	
MUNLEY, KEVIN	610-269-5319	(SELF-EMPLOYED CONSULTANT FORESTER)	GP	
NISKALA, GEORGE	215-566-3415	CONSULTANT	RG	
PIEBR, ROBB	814-472-2120	CAMBRA CO CONSERVATION DISTRICT	AC	
ROANE, ELLEN	717-787-2106	PA DER BUREAU OF FORESTRY	ST	BOB MARVILL
SALVATORE, SCOTT	610-995-2558	EARTH TECH	ST	SCOTT SALVATORE
ZAHORA, STANLEY	814-382-7156	FORESTRY CONSULTANT	EC	
Agriculture				
	814-835-0900	ERIE COUNTY COOPERATIVE EXTENSION	EC	
BRUNNER, JOHN	609-397-4410	DELAWARE RIVERKEEPER NETWORK	DR	
DAVIS, FRED	610-565-9070	DELAWARE CO COOP EXT	DC	
DUNBAR, DAVID	610-391-9840	PENN STATE COOP EXT/LEHIGH	LC	
FOURNIER, MICHAEL	215-345-3283	PENN STATE COOP EXT	BC	
FRITZ, TIMOTHY	610-489-4315	PENN STATE COOP EXT	MC	DOUG BEEGLE / LES LAYO
HOFFMAN, JOSEPH	610-372-4992	BERKS COUNTY CONSERVANCY	BE	
MYERS, CLYDE	610-378-1327	PENN STATE COOP EXT/BERKS	BE	MINA HATTAU
PERKINS, ROBERT	610-965-4397	WILDLANDS CONSERVANCY	LC	
STARK, OLIVER	215-345-1044	CONSERVATION ALLIANCE OF BUCKS CO	BC	
WURSTER, WALTER	610-696-3500	CHESTER COUNTY COOPERATIVE EXT	CC	
Hydromodification				
ANDERSON, KEN	610-836-6115	PA DER SOILS & WATERWAYS	GP	
LEDBETTER, LT MARK	215-271-4882	US COAST GUARD	DR	
LEHMAN, ROGER	717-787-9612	PA GAME COMMISSION	ST	
SNYDER, THOMAS	814-359-5173	PA FISH AND BOAT COMMISSION	DR	RICHARD MULFINGER

Marinas and Recreational Boaters

	215-788-9155	SNUG HARBOR MARINA	BC	
ADAMS, JIM	215-632-7484	COLUMBUS YACHT CLUB	BC	
ECKART'S MARINE	215-788-1757	ECKART'S MARINE SERVICE	BM	
		GREATER ERIE BOATING ASSN	LE	
HOUGHTON, JOHN	814-871-4251	PRESQUE ISLE STATE PARK (PA DER)	LE	
KOCH, HENRY	215-225-1661	PA BOATING ASSOCIATION	GP	
LITTLE, DON	215-624-9811	QUAKER CITY YACHT CLUB	PC	
MARR, FRANK	610-521-1846	FOX'S GROVE MARINA	DM	
MCGLINCHY, SHAWN	215-271-4882	US COAST GUARD PORT OPERATIONS	RG	
NASH, TED	215-925-2615	PORTS OF PHILA MARITIME EXCHANGE	DR	
NEUSS, GUSTANE	814-833-7500	PA BOATING ASSN/ERIE YACHT CLUB	EC	
PEPERYIAS, D GEORGE	215-323-7073	USCG AUXILIARY	GP	
POMORSKI, DOUG	814-455-7557	ERIE PORT AUTHORITY	LE	
ROZAKIS, JIM	814-332-6945	PA DER	RG	
TILBOTT, RON	814-359-5145	PA FISH AND BOAT COMMISSION	GP	

Urban

BARBATO, DANIEL	215-592-6313	PHILADELPHIA WATER DEPARTMENT	PC	
BARSCZ, CHUCK	215-597-6482	NATIONAL PARK SERVICE	GP	
BOLES, LAUREEN	215-685-6254	PHILADELPHIA WATER DEPARTMENT	PC	
BRUNNER, JOHN	609-397-4410	DELAWARE RIVERKEEPER NETWORK	GP	
DANKO, STEVE	814-898-0284	PRESQUE ISLE AUDUBON SOCIETY	LE	DO NOT HAVE ONE
DILLARD, LORI	215-492-8413	FORT MIFFLIN ON THE DELAWARE	GP	
DUPOLDT, CARL	610-353-2926	CHESTER RIDLEY CRUM WATERSHEDS ASSN	RG	AMY NABUT / HANK BISHOP
FASANO, PATRICK	717-529-2607	CHESTER WATER AUTHORITY	RG	
HOLM, KAREN	610-891-5213	DELAWARE COUNTY PLANNING DEPT	DC	
IMPERATO, PAT	610-565-9131	PA RESOURCES COUNCIL	GP	PAT IMPERATO
JAMES, RICHARD	215-482-7300		GP	PRISCILLA TAYLOR-WIL
JARIN, CAROLYN C	215-345-7860	PEACE VALLEY NATURE CENTER	BC	
LIVRONE, DENNIS	215-345-3422	BUCKS COUNTY PLANNING COMMISSION	BC	
MAURER, FRED	215-324-8942	FRIENDS OF TACONY CREEK PARK	GP	
McFARLAN, JAN	215-247-5777	MORRIS ARBORETUM OF THE U OF P	PC	
MCNAUGHT, BRUCE	215-297-5880	BUCKS COUNTY AUDUBON	BC	
MENEV, ROBERT	215-785-1177	SILVERLAKE NATURE CENTER	BC	

MYERS, RICHARD	215-345-0181	NESHAMINY WATERSHED ASSN	BC	
ROBERTSON, DAVID	215-657-0830	PENNYPACK ECOLOGICAL REST TRUST	RG	DAVID RIDER
RYAN, LETITIA	610-287-9383	PERKIOMEN VALLEY WATERSHED ASSN	RG	
SAUL, ANDREW	610-566-2569	DELAWARE COUNTY ENV NETWORK	DC	
SCHMID, JAMES	610-356-1416	SCHMID & CO INC, CONSULTING	ST	
SELLERS, H WILLIAM	610-388-2700	BRANDYWINE CONSERVANCY EMC	CC	JOHN GAADT
SILVERNAIL, DAVID	215-459-4512	TROUT UNLIMITED-DELCO MANNING CHPTR	DC	MARY KUSS
STOKES, MICHAEL	610-273-3729	MONTGOMERY COUNTY PLANNING COMM	MC	
STRUBLE, RG, JR	610-793-1090	BRANDYWINE VALLEY ASSN	RG	
TRAVERS, KRISTEN	610-268-2153	STROUD WATER RESEARCH CENTER	GP	
TURNER, JOSEPH	215-945-1329	BUCKS COUNTY SIERRA CLUB	BC	
WEILBACHER, GARI	610-668-4008	LWR MERION-NARBERTH WATERSHED ASSN	MC	
WENDELGASS, ROBERT	215-735-8409	CLEAN WATER ACTION	GP	FLORENCE NEILSON
WINTERS, DENNIS	610-521-3783	SIERRA CLUB/SEPA GROUP	GP	

** Note: NPS Contact is listed if it is someone other than the person completing the form.*

NPS SURVEY KEY GEOGRAPHIC AREA OF SERVICE

GP	=	GREATER PHILADELPHIA	ST	=	STATE WIDE
RG	=	REGIONAL	DR	=	DELAWARE RIVER
LE	=	LAKE ERIE	BC	=	BUCKS COUNTY
CC	=	CHESTER COUNTY	DC	=	DELAWARE COUNTY
MC	=	MONTGOMERY COUNTY	PC	=	PHILADELPHIA COUNTY
LC	=	LEHIGH COUNTY	BE	=	BERKS COUNTY
EC	=	ERIE COUNTY	AC	=	CAMBRIA COUNTY
BM	=	BUCKS MUNICIPAL	CM	=	CHESTER MUNICIPAL
DM	=	DELAWARE MUNICIPAL	MM	=	MONTGOMERY MUNICIPAL

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