

**SUSQUEHANNA RIVER BASIN COMMISSION  
4423 N. FRONT STREET  
HARRISBURG, PA 17110**

**REVISED**

**BUDGET  
FY-2018**

**March 9, 2017**

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**SUSQUEHANNA RIVER BASIN COMMISSION**  
**BUDGET FOR FISCAL YEAR 2018**

LEGAL CITATION:

New York:	Laws of 1967, Chapter 785
Pennsylvania:	Session of 1968, Act No. 181
Maryland:	Acts of 1967, Chapter 391
United States:	Public Law 91-575

This budget anticipates the receipt of both appropriations from the Commission's member jurisdictions and other revenues needed to support the continuing operations of the Commission. This includes short-term programs deemed necessary to achieve the purposes of the Susquehanna River Basin Compact (Compact) and the objectives and goals set forth in the SRBC Comprehensive Plan.

The Compact provides that the Commission may receive and accept such payments, appropriations, grants, gifts, etc., (Article 15, Section 15.1(a) 2) as may be made available to it by the member jurisdictions, or any other public or private corporation or individual, for use in furthering the purposes of the Compact.

Attached are schedules presenting this revised budget request in detail for Fiscal Year 2018, which covers the twelve month period beginning July 1, 2017. Comparative amounts for the revised budgets for Fiscal Year 2017 and the initial budget for 2018 are also included. All statements and explanations submitted herewith are true and correct to the best of our knowledge.

HEREBY APPROVED AND SUBMITTED BY:



Marcia E. Hutchinson  
Director, Administration & Finance

3-9-17

Date



Andrew D. Dehoff  
Executive Director

March 9, 2017

Date

**SUSQUEHANNA RIVER BASIN COMMISSION**  
**PROPOSED BUDGET FOR FISCAL YEAR 2018**  
(July 1, 2017 - June 30, 2018)

	<b>General Fund</b>	<b>Water Management Fund (1)</b>	<b>Total</b>
<b>Revenues:</b>			
Member Jurisdictions	\$ 1,078,000		\$ 1,078,000
Grants & Contractual	2,147,200		2,147,200
Regulatory Program Fees	4,364,600	\$ 3,000,000	7,364,600
Other Income	348,500	1,230,000	1,578,500
<b>TOTAL REVENUES</b>	<b>\$ 7,938,300</b>	<b>\$ 4,230,000</b>	<b>\$12,168,300</b>
<b>Expenditures:</b>			
Personnel Services	\$ 4,927,000		\$ 4,927,000
Employee Benefits	2,480,000		2,480,000
Special Contractual Services	662,100		662,100
Travel & Subsistence	106,425		106,425
Comm. Mtgs. & Public Hearings	33,000		33,000
Communications, Postage	100,000		100,000
Rent – Equip., Land & Bldgs.	26,000		26,000
Printing, Reprod. & Advertising	65,000		65,000
Software - License, Purchase & Maint.	132,000		132,000
Repairs & Maintenance	136,500		136,500
Other Contractual Services	140,500		140,500
Utilities, Janitorial	120,025		120,025
Supplies & Materials	247,000		247,000
O&M – Cowanesque/Curwensville		830,000	830,000
Depr. – Water Storage Rights		1,131,000	1,131,000
Interest Expense		278,000	278,000
Capital Expenditures	446,000		446,000
<b>TOTAL EXPENDITURES</b>	<b>\$ 9,621,550</b>	<b>\$ 2,239,000</b>	<b>\$11,860,550</b>
<b>EXCESS (DEFICIT) OF REVENUE OVER EXPENDITURES</b>	<b>\$ (1,683,250)</b>	<b>\$ 1,991,000</b>	<b>\$ 307,750</b>
Transfer from Water Management Fund	\$ 1,055,750 (2)	(1,055,750)	-
Transfer from Fiscal Stabilization Fund	\$ 125,000 (3)		\$ 125,000
Transfer from Sustainable Water Resources Fund	\$ 502,500 (4)		\$ 502,500
<b>TRANSFERS IN (OUT)</b>	<b>\$ 1,683,250</b>	<b>\$ (1,055,750)</b>	<b>\$ 627,500</b>
<b>EXCESS (DEFICIT) AFTER FUND TRANSFERS</b>	<b>\$ -</b>	<b>\$ 935,250</b>	<b>\$ 935,250</b>

(1) The Water Management Fund is designated for the financing of water supply related projects, including costs associated with the planning, engineering, design, and construction phases of new projects or the reformulation of existing projects, or any other project or study initiated by the Commission to address the cumulative impact of consumptive water use or otherwise to support low flow management in the Susquehanna River Basin. Revenue generated in excess of expenses is used to build the balance in the fund.

(2) Costs for employees who are working on Water Management Fund projects are paid through the General Fund and reimbursed from the Water Management Fund.

(3) The Commission's regulations provide that certain withdrawals and consumptive uses that are in excess of the Commission's regulatory thresholds do not require Commission approval if they predated regulations and certain other conditions are met. In FY-18 the Commission will begin to implement new regulations which require the registration of these projects. See page 11 "Registration of Grandfathered Projects" for a complete description of the anticipated activities. A portion of the implementation costs will be covered by a transfer from the Commission's Fiscal Stabilization Fund.

(4) In FY18 the Commission will upgrade a portion of its Remote Water Quality Monitoring Network and support several studies designed to further its regulatory and environmental protection programs. The Commission will also continue to provide assistance to small public water suppliers (PWS). The cost of these upgrades and studies, and continued assistance to PWS will be covered by the Commission's Sustainable Water Resources Fund.

# SUSQUEHANNA RIVER BASIN COMMISSION

## GENERAL FUND COMPARATIVE STATEMENT OF REVENUES BY MAJOR SOURCES

SOURCES	Revised Budget FY 2017	Budget FY 2018	Revised Budget FY 2018
Member Jurisdictions: (5)			
New York	\$ 259,000	\$ 390,000	\$ 259,000
Pennsylvania	573,000	785,000	473,000
Maryland	360,000	390,000	346,000
United States	-	880,000	-
<b>Subtotal - Member Jurisdictions</b>	<b>\$ 1,192,000</b>	<b>\$ 2,445,000</b>	<b>\$ 1,078,000</b>
Other Income: (6)			
Grants & Contractual	\$ 2,677,700	\$ 2,005,000	\$ 2,147,200
Regulatory Program Fees	4,673,800	4,456,000	4,364,600
Interest Income, Building Rental & Other	243,500	343,500	348,500
<b>Subtotal - Other Income</b>	<b>\$ 7,595,000</b>	<b>\$ 6,804,500</b>	<b>\$ 6,860,300</b>
 <b>TOTAL ALL SOURCES</b>	<b>\$ 8,787,000</b>	<b>\$ 9,249,500</b>	<b>\$ 7,938,300</b>

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(5) In accordance with the Susquehanna River Basin Compact, Section 14.3( c), the respective member jurisdictions are requested to include the apportioned amounts set forth above in their respective budgets next to be adopted, subject to such review and approval as may be required by their respective budgetary processes.

(6) Income from other sources is estimated on the basis of past experience and authorized programs. Program activities are designed in recognition of the tentative and/or short-term nature of such funds and can be adjusted accordingly.

**SUSQUEHANNA RIVER BASIN COMMISSION  
MAJOR OBJECT CLASSIFICATION  
PERSONNEL SERVICES**

<b>Appropriation Class</b>	<b>Revised Budget FY 2017</b>	<b>Budget FY 2018</b>	<b>Revised Budget FY 2018 <sup>(7)</sup></b>
Salaries	\$ 4,820,000	\$ 5,050,000	\$ 4,927,000

**COMPARISON OF PERMANENT STAFFING  
FOR FISCAL YEAR 2018**

<b>Departments</b>	<b>Budget 2018</b>			<b>Revised Budget 2018</b>			<b>Change ( + Or - )</b>		
	<b>Prof.</b>	<b>Cler.</b>	<b>Total</b>	<b>Prof.</b>	<b>Cler.</b>	<b>Total</b>	<b>Prof.</b>	<b>Cler.</b>	<b>Total</b>
Executive	3	1	4	3	1	4	0	0	0
Administrative & Staff Services	7	2	9	7	2	9	0	0	0
Gov't/Public Affairs	1	0	1	1	0	1	0	0	0
Technical Programs	2	0	2	2	0	2	0	0	0
Project Review	14	3	17	14	3	17	0	0	0
Planning & Operations	6	0	6	6	0	6	0	0	0
Compliance	10	1	11	9	1	10	-1	0	-1
Grant Programs	14	1	15	18	1	19	4	0	4
<b>Total</b>	<b>57</b>	<b>8</b>	<b>65</b>	<b>60</b>	<b>8</b>	<b>68</b>	<b>3</b>	<b>0</b>	<b>3</b>

(7) The FY-2018 budget includes 3% for performance-based and 2% for cost of living increases.

# SUSQUEHANNA RIVER BASIN COMMISSION

## MAJOR OBJECT CLASSIFICATION EMPLOYEE BENEFITS

<u>Appropriation Class</u>	<u>Revised Budget FY 2017</u>	<u>Budget FY 2018</u>	<u>Revised Budget FY 2018</u>
Medical Insurance	\$ 685,000	\$ 720,000	\$ 710,000
Social Security-Commission Share	360,000	385,000	385,000
Workmen's Compensation	30,000	30,000	30,000
Employee Life Insurance	35,000	40,000	40,000
Unemployment Compensation	10,000	10,000	10,000
Retirement Plan - Commission Share (8)	1,170,000	1,390,000	1,305,000
<b>Total</b>	<b>\$ 2,290,000</b>	<b>\$ 2,575,000</b>	<b>\$ 2,480,000</b>

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(8) Retirement employer contribution rate budgeted for FY-2018 is 26.8%.

**SUSQUEHANNA RIVER BASIN COMMISSION**

**MAJOR OBJECT CLASSIFICATION  
CONTRACTUAL SERVICES**

<b>Appropriation Class</b>	<b>Revised Budget FY 2017</b>	<b>Budget FY 2018</b>	<b>Revised Budget FY 2018</b>
Fees, Financial Services	\$ 40,000	\$ 40,000	\$ 40,000
Fees, Legal & Investigative Services	25,000	25,000	25,000
Fees, Cooperative Programs	50,000	150,000	50,000
Fees, Research & Laboratory Services	200,000	125,000	151,600
Fees, Computer Services Other	25,000	25,000	7,500
Other Services - Professional (9)	750,000	750,000	388,000
Travel & Subsistence	90,000	90,000	106,425
Commission Meetings	40,000	40,000	25,000
Public Hearing Expenses	8,000	8,000	8,000
Communications Expenses	85,000	85,000	85,000
Postage	20,000	20,000	15,000
Rent - Land, Buildings & Equipment	35,000	35,000	26,000
Printing & Reproduction	60,000	60,000	60,000
Advertising	5,000	10,000	5,000
Software Purchase, License & Maint.	120,000	120,000	132,000
Repairs & Maint.-Bldg. & Grounds	40,000	40,000	35,000
Repairs & Maint.-Office Equip.	5,000	5,000	1,500
Repairs & Maint.-Auto. Equip.	25,000	25,000	25,000
Repairs & Maint.-Lab. Equip.	120,000	75,000	75,000
Insurance	100,000	100,000	120,500
Dues & Memberships	15,000	15,000	20,000
Electric, Heat, Water & Sewage	75,000	75,000	80,000
Janitorial Service	35,000	35,000	40,025
<b>Total</b>	<b>\$ 1,968,000</b>	<b>\$ 1,953,000</b>	<b>\$ 1,521,550</b>

(9) The FY-2018 budget includes agreements with independent contractors. The Executive Director is authorized by the resolution adopting this budget to execute any and all agreements up to the total amount budgeted for contractors for the fiscal year.

**SUSQUEHANNA RIVER BASIN COMMISSION**

**MAJOR OBJECT CLASSIFICATION  
SUPPLIES and OTHER**

<u>Appropriation Class</u>	<u>Revised Budget FY 2017</u>	<u>Budget FY 2018</u>	<u>Revised Budget FY 2018</u>
Office Supplies	\$ 15,000	\$ 18,500	\$ 20,000
Automotive Supplies (10)	60,000	50,000	50,000
Janitorial Supplies	5,000	5,000	5,000
Computer Supplies	40,000	40,000	40,000
Laboratory Supplies (11)	75,000	75,000	57,000
Miscellaneous Supplies	2,500	2,500	2,500
Subscriptions & Publications	2,500	2,500	2,500
Moving & Recruiting Expenses	10,000	10,000	10,000
Staff Training & Seminars	75,000	75,000	50,000
Miscellaneous	15,000	15,000	10,000
<b>Total</b>	<b><u>\$ 300,000</u></b>	<b><u>\$ 293,500</u></b>	<b><u>\$ 247,000</u></b>

(10) Also includes fuel costs

(11) Includes replacement parts for sondes

**SUSQUEHANNA RIVER BASIN COMMISSION**

**MAJOR OBJECT CLASSIFICATION  
CAPITAL EXPENDITURES**

<b>Appropriation Class</b>	<b>Revised Budget FY 2017</b>	<b>Budget FY 2018</b>	<b>Revised Budget FY 2018</b>
Computer Equipment	\$ 30,000	\$ 30,000	\$ 20,000
Automotive Equipment (12)	140,000	140,000	70,000
Office Furniture & Fixtures	10,000	10,000	10,000
Scientific & Laboratory (13)	325,000	305,000	346,000
<b>Total</b>	<b>\$ 505,000</b>	<b>\$ 485,000</b>	<b>\$ 446,000</b>

(12) One Sayre-based and one Harrisburg-based Commission vehicles will be replaced in FY-2018.

(13) In FY-2018 the Commission will upgrade a portion of its Remote Water Quality Monitoring Network. The cost of the new units will be covered by the Commission's Sustainable Water Resources Fund

**SUSQUEHANNA RIVER BASIN COMMISSION**  
**ALLOCATION BY PRIORITY MANAGEMENT AREA**  
**FOR FISCAL YEAR 2018**

The revised total expense budget request for Fiscal Year 2018 is \$11,860,550. The proposed budget will support the Commission's programs as follows:

<u>Percent of Total Budget</u>		
I.	Water Supply	61%
II.	Water Quality	14%
III.	Flooding	1%
IV.	Ecosystems	6%
V.	Chesapeake Bay	5%
VI.	Coordination, Cooperation, Public Information and Admin.	12%
	Total	100%

## PRIORITY MANAGEMENT AREA A: WATER SUPPLY

### Desired Result

To meet immediate and future water needs of the people of the basin for domestic, municipal, commercial, agricultural and industrial water supply and recreational activities, in order to maintain sustainable economic viability, protect instream uses, and ensure ecological diversity through regulation and planning.

### Programs

#### **AREA A: Water Supply**

Regulation of Water Users - Permits.....	\$ 1,877,500
Regulation of Water Users - ABR.....	342,000
Compliance and Enforcement .....	1,525,000
Registration of Grandfathered Projects .....	260,000
Drought Planning & Coordination .....	110,000
Cumulative Water Use and Availability Study.....	125,000
F.J. Sayers Section 1135 Study .....	130,000
Cowanesque/Curwensville Reservoir Operations .....	2,239,000
Consumptive Use Mitigation Planning .....	190,000
General Hydrologic Studies .....	65,000
Hydrologic Model Updates .....	70,000
Baseline Streamflow Study .....	50,000
Public Water System Assistance Initiative .....	72,500
LCSWMA Billmeyer Quarry .....	125,000
Hydroelectric Project Regulation & Relicensing .....	65,000
<b>Total</b>	<b>\$ 7,246,000</b>

### **Activities which will be conducted under Priority Management Area A: Water Supply**

**Regulation of Water Users – Permits** – Commission staff will review and make recommendations on appropriate actions to take on applications, modifications and renewals for water withdrawal and consumptive uses.

**Regulation of Water Users - ABR**– This expedited Approval-by-Rule process is used by companies interested in using a source of water that has already been approved for use (e.g., a public water supply) or a source that is of lesser quality (e.g., wastewater discharge, mine water).

**Compliance and Enforcement** - The Commission requires metering at all withdrawal sites to document daily quantities of water which have been withdrawn or used. Metering data are reported quarterly by project sponsors online. Staff use the data to monitor approval conditions such as protective passby flows. The Commission’s compliance program also includes field inspection of approved projects both during construction and periodically during the term of the approval, and enforcement actions against companies that fail to gain SRBC approval or violate the terms and conditions of approvals. These costs also include the cost of maintaining the Sayre, Pennsylvania office.

**Registration of Grandfathered Projects** – The Commission’s regulations provide that certain withdrawals and consumptive uses that are in excess of the Commission’s regulatory thresholds do not require Commission approval if they predated regulations and certain other conditions are met. This exemption is referred to “grandfathering”. Grandfathered projects have not reported withdrawal or consumptive use data to the Commission, which hampers its ability to effectively manage the water resources of the Basin. The process for grandfathered

projects and the Commission to determine the grandfathered amount is an expensive, inefficient and time consuming process that very often leads to inconclusive results given the scarcity of historical data. In FY-18, the Commission will begin to implement new regulations which require grandfathered projects to register with the Commission, receive a definitive determination of a grandfathered quantity, and to report water withdrawal and consumptive use data.

**Drought Planning & Coordination** - The Commission established a basin-wide Drought Coordination Plan with its member jurisdictions to promote consistency when determining, responding to and informing the public of droughts, and convenes the Drought Coordinating Committee as drought conditions emerge to share information and identify possible response actions. Staff will continue to consult with the Drought Coordinating Committee during drought conditions and will revise the Drought Coordination Plan and related implementation tools as needed. Staff are also partnering with Hazen & Sawyer on a NOAA grant project that will lead to the development of a Drought Planning Tool for the basin that integrates drought early warning indices, hydrologic forecasts, and a system operations model to inform and guide proactive responses to projected near- and medium term dry periods.

**Cumulative Water Use and Availability Study** - Commission staff completed this study in FY-2016. The study compiled a comprehensive, basin-wide water use data library and refined procedures for computing existing and projected cumulative consumptive water use at the project and watershed scales. Staff determined sustainable water availability limits for watersheds throughout the basin, and developed a GIS-based tool for automating the cumulative water use and availability analysis and illustrating results to inform regulatory and planning activities. In FY-2018, staff will maintain and update the water use database, evaluate additional refinements to the tool, conduct more detailed analyses in priority watersheds, and implement study recommendations.

**F.J. Sayers Section 1135 Study** - Foster Joseph Sayers Dam and Reservoir, owned and operated by the U.S. Army Corps of Engineers (USACE), is a multiple purpose project providing flood control, recreation, and water quality control in Centre County, Pennsylvania. Currently, the reservoir is drawn down a total of 20 feet in late fall and winter and returned to normal pool level by late spring. Commission staff believe the in-lake ecosystem would benefit from some potential environmental modifications and that low flow augmentation from the reservoir during critical low flow periods would benefit the downstream ecosystem. A feasibility study will be conducted to determine if alternative measures exist that may provide environmental benefits and also be consistent and not conflict with project purposes.

**Cowanesque/Curwensville Reservoir Operations** - The Commission owns water supply storage at Cowanesque and Curwensville Lakes. The Commission pays a share of the operating and maintenance costs for Cowanesque, which are passed through to Exelon and PPL. Costs also include depreciation of water storage rights (\$1,131,000), interest on the Cowanesque loan (\$278,000), and operating and maintenance costs for Cowanesque and Curwensville Lakes (\$840,000).

**Consumptive Use Mitigation Planning** – Staff will continue to implement recommendations in the Consumptive Use Mitigation Plan related to the evaluation of water storage and low flow augmentation release potential within the basin including USACE reservoirs, state/private lakes, abandoned mine pools, and other feasible sources. Staff will also develop a Consumptive Use Mitigation Policy to provide guidance regarding the determination of an acceptable manner of mitigation to be provided by project sponsors whose consumptive use is subject to review and approval and to memorialize contemporary consumptive use mitigation criteria utilized by the Commission in formulating and implementing consumptive use mitigation projects.

**General Hydrologic Studies** – Commission staff are continually monitoring basin hydrologic conditions and improving hydrologic datasets and tools to guide regulatory and planning decision making. Specific efforts include monitoring flood/drought conditions and associated mitigation operations, maintaining a comprehensive stream gage database containing basin characteristic and streamflow statistic data, improving passby flow determination datasets and spreadsheet tools, preparing low flow forecasts for annual Conowingo Pond Management Workgroup meetings, enhancing ecosystem flow recommendations compliance tool, etc.

**Hydrologic Model Updates** – Commission staff, with technical support from contractors at a cost not to exceed \$25,000, will continue to make necessary updates and refinements to its existing basin-wide OASIS hydrologic model. Improvements will include updated software, hydrologic records, demand data, and project operations as well as model documentation, training, and support.

**Baseline Streamflow Study** – Commission staff will conduct comprehensive desktop research to identify the most common baseline streamflow generation methodologies and perform a literature review of existing approaches. Baseline streamflow will be generated using the most common methods, including regional regression, separation of gage records, streamflow interpolation, etc., for select watersheds and each major subbasin. An evaluation of each method's ability to predict baseline streamflow at priority locations will be conducted. The results will be used to inform planning and policy implementation processes, and will advance internal practices for quantifying hydrologic alteration.

**Public Water System Assistance Initiative** – Through a PADEP grant, staff will provide both global and focused education and system-specific guidance to small public water systems that meet eligibility requirements, lack financial and technical capabilities, and are subject to Commission groundwater withdrawal regulations. Staff will also provide technical assistance related to the groundwater withdrawal application process and aquifer testing requirements, and will provide hydrogeologic guidance to assist in the development, management and protection of groundwater sources. Relief from Commission regulatory fees is also provided by the grant.

**LCSWMA Billmeyer Quarry** - In December, 2015 Commission staff completed a desktop review, water quality sampling, and bathymetric survey (Phase I Study) of the Lancaster County Solid Waste Management Authority (LCSWMA), Billmeyer Quarry located near Bainbridge, Lancaster County, Pennsylvania. The Phase I Study indicated that approximately 200-400 million gallons (Mgal) of water storage could be available for consumptive use mitigation during low flow conditions. In FY-2017 staff began a study (Phase II Study) to assess the feasibility of pumping and releasing stored water from the quarry for mitigation, which included a detailed site characterization and operational testing. Phase II, including the pumping test at a cost not to exceed \$60,000, will continue into FY-2018.

**Hydroelectric Project Regulation and Relicensing-** Over the past several years, the Commission has been actively engaged with partner agencies and stakeholders in the relicensing of the York Haven, Muddy Run, and Conowingo Hydroelectric Projects on the lower Susquehanna River. Recently, staff have also been involved in relicensing of the Colliersville Hydroelectric Project on the upper Susquehanna River. Key resource issues of focus have included environmental flows, fish passage, water quality, sediment/nutrient management, etc. Staff have and will continue to coordinate with partner agencies and stakeholders on study requests, study plan/report reviews, comment letters, National Environmental Policy Act document reviews, Section 401 Water Quality Certificate conditions, etc. throughout the relicensing processes.

## PRIORITY MANAGEMENT AREA B: WATER QUALITY

### Desired Result

To support the existing and designated uses of all water bodies by achieving water quality that meets or exceeds standards.

### Programs

#### **AREA B: Water Quality**

Subbasin Surveys .....	\$	149,000
Large Waters Assessment .....		70,000
National Aquatic Resource Surveys .....		172,000
Total Maximum Daily Loads for Impaired Stream Reaches .....		200,000
Source Water Protection and Interstate Water Security Activities .....		65,000
Stream Assessment Support .....		55,000
Enhanced Basin Research .....		55,000
Remote Water Quality Monitoring Network .....		912,000
Stormwater BMP Projects .....		15,000
<b>Total</b>	<b>\$</b>	<b>1,693,000</b>

#### **Activities which will be conducted under Priority Management Area B: Water Quality**

**Subbasin Surveys** - The Commission has been conducting water quality and biological surveys of streams in each of the six major subbasins on a rotating basis. Local, state and federal coordination are considered in the sampling design to ensure that the data collected are not duplicative, and provide justification and support for future protection, enhancement and restoration efforts. Data are provided to the member states and local groups to support TMDL efforts, as well as watershed restoration and protection projects. The Commission's subbasin surveys include regional, probabilistic-design sampling during typical (summer) base flow conditions, followed by a year of more intensive sampling efforts focused on specific objectives such as acid mine drainage, stormwater Best Management Practice (BMP), or watershed improvement projects. In FY-2018 we will conduct broad, regional survey activities in the Chemung subbasin and more focused sampling within the Lower subbasin.

**Large Waters Assessment** – In 2002, the Commission conducted a pilot study to determine appropriate methods to assess the biological conditions of large rivers in the Susquehanna River Basin. In subsequent years, the large river assessment program was expanded to include biological and water quality monitoring at approximately 25 stations on the mainstem Susquehanna River and along sections of the West Branch Susquehanna River, the Juniata River, the Chemung River, as well as the series of reservoirs on the Lower Susquehanna River. The Commission also continues to coordinate with the states and USEPA to refine the overall large waters monitoring program, as well as integrate source water protection monitoring activities to enhance protection of public drinking water supplies utilizing the main stem Susquehanna River and its major tributaries. In FY-2017, SRBC began use of its newly-purchased jetboat – an 18-foot work boat platform that offers staff the capability to perform on-water activities in portions of the Basin that previously were under-accessed or inaccessible altogether to SRBC because our vessels were either propeller-driven or unmotored. The focus for FY-2018 will be main stem rivers in the Upper, Middle, and West Branch subbasins.

**National Aquatic Resource Surveys** – The EPA National Aquatic Resource Survey Program is a nation-wide initiative to sample aquatic resources in a statistically-relevant and categorical process. SRBC participates in the National Lakes and National Rivers and Streams Assessment components (NLA, NRSA, respectively) according to their respective schedules of rotation. Since inception of the National Aquatic Resource Survey Program, SRBC has participated in NLA and NRSA sampling in the Basin as well as within one or more of the state jurisdictions of the

Basin. In FY18, SRBC is scheduled to sample 18-20 lakes throughout Pennsylvania for biological, water quality, and aqueous chemistry parameters. Additionally, in FY-2018, SRBC will begin coordination activities to survey ~20-30 river and stream sites across Pennsylvania and possibly additional sites in New York State.

**Total Maximum Daily Loads for Impaired Stream Reaches** - The federal Clean Water Act requires that certain impaired waters be included on a Section 303(d) list for each state. After USEPA approves the state lists, TMDLs must be prepared for the listed waters. The Commission will coordinate with its member jurisdictions regarding TMDL and Section 303(d) issues, including the TMDL issues associated with the Chesapeake Bay restoration effort. The Commission also will assist the states in developing TMDLs. TMDL work in each member jurisdiction will be performed in accordance with the jurisdiction's development plan; with the Commission developing TMDLs on streams affected by urban runoff, agriculture, and other causes of impairment. The Commission will coordinate closely with the appropriate agencies on the Commission's TMDL activities. Underway since FY-2015, the Commission will continue to work closely with PADEP in FY-2018 on a pilot project for TMDL alternatives in the Chiques Creek watershed. Our primary roles include coordination of an "Agency Effort" in conjunction with parallel stakeholder activities related to general watershed stewardship and flood mitigation; development of a Watershed Implementation Plan; development of a long-term monitoring framework; and, various watershed monitoring activities, including operation and maintenance (O&M) of two real-time continuous in-stream monitoring (CIM) stations. SRBC also will continue support of on-going, traditional TMDL activities in the Octoraro and select other watersheds in Pennsylvania.

**Source Water Protection and Interstate Water Security Activities** - Staff will continue to support implementation of regional source water protection management measures for the majority of large public water supply systems within the Lower Susquehanna River Basin. Staff will also continue to operate, maintain, and expand the Early Warning System for public water suppliers, which was established by the Commission in 2003. Launched in FY-2016, staff also will continue to provide 24/7 support to members of PADEP's Spill Response unit to furnish, real-time condition modeled estimates of travel time between suspected contaminant plumes and water supply intake features. In FY-2018, the Commission will continue to organize and formalize aspects of the Lower Susquehanna Source Water Protection Partnership through increased data and information sharing, development of technical and issue steering committees, and promotion of awareness among members/affiliates about topical issues.

**Stream Assessment Support** - Commission staff will provide support to PADEP designed to improve the accuracy of impaired waters listings. Staff will process various data sets, query partners and collaborators with intimate knowledge of AML/AMD activities in the SRB, compile our findings, and convey relevant summary information to PADEP. Support may also include identification of AMD-impairments that are predominated by just a few discrete discharge points; dominated by water types or pollutant loadings that facilitate treatment by cost-effective approaches; as well as settings for which AMD remediation also contributes to improvements in water quality and/or quantity for water-stressed source areas, ecologically significant areas, and/or potentially climate-resilient (e.g., impaired cold water fishery) aquatic habitat.

Our support also will include systematic processing of SRBC's internal data sets specifically in efforts to cross-reference our biologic data with PADEP's designated use classifications with the objective of identifying stream segments that might warrant special protection upgrades. Commission and PADEP staff will also begin to develop an inventory of potential restoration opportunities that can be prioritized according to multiple stakeholder interests as well as facilitate application of appropriate and more stringent watershed protection framework.

**Enhanced Basin Research** - The Commission has spent decades collecting chemical, physical, and biological data in the Basin as part of numerous monitoring projects that have been funded by Section 106, member state funding, and/or internal funding. In addition, other state and federal agencies have been collecting data within the Basin as part of separate monitoring projects while striving to reach their own goals. Combination datasets offer the potential for analyses on temporal and spatial scales that surpass the individual project objectives for which the data were originally collected. Beginning in FY-2017, SRBC's collective dataset was re-structured and augmented with GIS information to leverage knowledge gained in specific areas for more efficient use to characterize Basin resources and enhance scientific understanding overall. While much of SRBC's focus in FY-2017 emphasized compilation and

structural enhancements of the dataset, SRBC staff also began to use the dataset to study other issues including: (i) identification of biological indicators of altered flow; (ii) non-point source runoff pollution; and, (iii) geochemical characterization of particular geographical areas within the Basin. Moreover, the structural composition of this database has greatly facilitated research conducted by staff and others and SRBC's database is being used in FY-2018: (i) to support development of PA chloride water quality standards; (ii) by those interested in Contaminants of Emerging Concern (CEC); (iii) to inform climate change studies; (iv) for on-going efforts to identify biological flow-indicators; and, (v) to evaluate biological effects of turbidity and conductivity in the context of road-influenced watershed change.

**Remote Water Quality Monitoring Network** – In early 2010, the Commission began installing what has grown to be a 60-station remote water quality monitoring network in the Marcellus Shale Gas Play portion of the Susquehanna River Basin. In FY-2017, the Commission begins a four-year program to replace all of its stations with upgraded CIM equipment. Stations will continue to transmit real-time monitoring data that is made available to the public through our Remote Water Quality Monitoring Network website. Staff will continue to perform routine maintenance checks on the monitoring equipment as well as collect aqueous chemistry, instantaneous discharge, macroinvertebrate community, and habitat information. Data developed through the RWQMN program support a myriad of aquatic science applications including an annual status and trends report. In FY-2018, staff also will continue implementation of recommendations informed by a detailed in-house evaluation that was conducted in FY-2016; such recommendations afford efficiencies and cost-savings in labor and sample collection as well as involve re-positioning of at least twelve (12) stations to geographic regions in the Basin that were under-represented in the initial network.

In FY-2018, we will also support the Pennsylvania Department of Conservation and Natural Resources (DCNR) through our continuation of O&M, data analytics, and documentation for 10 (of the RWQMN's 60) CIM stations that are located on State-open lands.

**Stormwater Best Management Practice (BMP) Projects** - Consistent with the Commission's goals to be a well-informed leader regarding the Basin's water resources; to educate stakeholders about pollution-reduction practices; and, to encourage excellence among staff by providing opportunities for professional development, in FY-2018 SRBC staff will pursue applied, "hands-on" learning related to a growing inventory of urban and agricultural stormwater BMP projects. Staff activities will emphasize data collection and analyses related to pre- and post-BMP implementation pollutant concentrations and loadings; stormwater hydrology; O&M practices and costs; and monitoring to demonstrate whether BMP projects exert water quality improvements.

## PRIORITY MANAGEMENT AREA C: FLOODING

### Desired Result

To prevent loss of life and significantly reduce future damages from floods within the basin through an integrated system of structural and nonstructural flood damage reduction measures.

### Programs

#### **AREA C: Flood Coordination**

Flood Coordination.....	\$	70,000
Tri-County Flood Warning System.....		35,000
Silver Jackets.....		25,000
Chiques Creek Flood Resiliency Study .....		20,000
<b>Total</b>	<b>\$</b>	<b>150,000</b>

#### **Activities which will be conducted under Priority Management Area C: Flooding**

**Flood Coordination** – Since the mid-1980s, the Commission has coordinated an interagency committee to improve basin-wide flood forecast and warning and dissemination of public information related to flood hazards and events. The Commission will continue to coordinate the interagency committee, with the involved federal, state, and county agencies, local stakeholders, and legislative and municipal officials. Staff will serve as the liaison between the public and partner agencies to aid in the development of useful flood forecast and preparedness products and reliable dissemination techniques.

**Tri-County Flood Warning System** – Commission staff, under a FEMA grant, will conduct a pilot project in partnership with Huntingdon, Lancaster, and Dauphin Counties focused on developing camera-based flood warning systems. The project will enhance situational awareness through a variety of pathways including existing mobile technologies, cellular based camera imagery, and a web-based data portal.

**Silver Jackets** – Commission staff will continue to seek leveraged solutions for flood mitigation projects through coordination with Silver Jackets teams in the basin. The Silver Jackets effort is spearheaded by the USACE and involves multiple federal and state agencies with a common mission of protecting life and property during flood events. Statewide teams typically compete for pilot projects that match team member funds to USACE funds to complete mitigation projects.

**Chiques Creek Flood Resiliency Study** – Commission staff have been working with the Pennsylvania Department of Environmental Protection, Lancaster County Conservation District, Pennsylvania State University, and select stakeholders to develop an alternate approach to traditional TMDL development for the Chiques Creek Watershed. As a compliment to this effort, SRBC received funding from PADEP to develop hydrologic and hydraulic (H&H) models to evaluate alternatives for enhancing flood resiliency in the watershed. It is envisioned that green infrastructure practices, which could result in reduced pollutant loadings and flood risk, will be thoroughly considered as part of the alternatives analysis. As part of this project, the U.S. Army Corps of Engineers (USACE), Baltimore District, will partner with SRBC to develop a Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS) model for the Chiques Creek Watershed and a HEC River Analysis System (HEC-RAS) model for priority flood risk reaches of Chiques Creek and/or its tributaries. These models will be used to characterize existing conditions, simulate various alternatives under proposed conditions, and formulate recommendations for improving flood resiliency in the watershed.

## PRIORITY MANAGEMENT AREA D: ECOSYSTEMS

### Desired Result

To achieve healthy ecosystems that provide groundwater and surface water of sufficient quality and in adequate supply to support abundant and diverse populations of aquatic, riparian, and terrestrial organisms, as well as human use.

### Programs

#### **AREA D: Ecosystems**

Migratory Fish Restoration and Invasive Species Control .....	\$	15,000
American Eel Restoration.....		51,000
Aquatic Resource Surveys .....		51,000
Water Resources Studies.....		100,000
Bilger Run AMD Restoration Project.....		35,000
Birch Island AMD Restoration Project.....		41,000
Rausch Creek AMD Restoration Project.....		140,000
Mocanaqua Tunnel .....		130,000
Flow Ecology Study .....		100,000
Montage Mountain Fish Restoration.....		25,000
Octoraro Watershed Agricultural BMPs.....		35,000
<b>Total</b>	<b>\$</b>	<b>723,000</b>

#### **Activities which will be conducted under Priority Management Area D: Ecosystems**

**Migratory Fish Restoration and Invasive Species Control** - The Commission will continue to participate in the Migratory Fish Restoration Program, in cooperation with the owners of major dams in the basin, various government agencies, and environmental and recreational organizations. These activities are all part of our ultimate goal of restoring American shad and other migratory fishes to the Susquehanna River Basin.

**American Eel Restoration** - Migration of historically-abundant American eels to and from the basin has been restricted by the presence of dams and hydroelectric projects on the Lower Susquehanna River. Similarly, freshwater mussel populations, which rely on American eels as a host species, have also been on the decline in the Susquehanna basin. In 2008, the US Fish and Wildlife Service began a limited, but successful, reintroduction program, which is planned to be expanded. This project aims to study changes to freshwater systems after further reintroduction of American eels, including evaluations of shifts in fish and macroinvertebrate community structure, re-establishment of mussel populations, and water quality improvements.

**Aquatic Resource Surveys** – As part of our surface water withdrawal application process, staff perform aquatic resource surveys. The surveys include fish and macroinvertebrate sampling, invasive species survey, habitat assessment, water quality testing and hydrologic parameter testing. ARS findings support the Commission’s Project Review Program. Moreover, ARS research enhances the Commission’s understanding of potential impacts due to water withdrawal activities and is used to verify the effectiveness of passby flow requirements.

**Water Resources Studies** – On an annual basis the Commission requests proposals for studies which further the mission and work of the organization. In FY-2018 the Commission, through funding provided by its Sustainable Water Resources Fund, will continue to support such studies.

**Bilger Run AMD Restoration Project** – In 2017, USEPA solicited a proposal for AMD remediation in Bilger Run from a team that included the Commission, Trout Unlimited, and the Clearfield County Conservation District (CCCD). The proposal was requested based on a watershed plan furnished by SRBC and its partners in FY2016.

**Birch Island Run AMD Restoration Project** – In 2013, the Commission and the Clinton County Conservation District obtained a Pennsylvania Growing Greener Program grant to restore water quality conditions degraded by abandoned mine drainage in the Birch Island Run watershed. The restoration project will address TMDLs established by PADEP by constructing treatment systems to reduce pollutant loads in the watershed.

**Rausch Creek Mine Pool Evaluation and Discharge Transport Project** – The Rausch Creek Treatment Plant was built in 1973, and was designed to intercept and treat the entire flow of Rausch Creek prior to mixing it downstream with Pine Creek. During periods of heavy rainfall flows exceed what the plant is capable of treating. The Commission, through mine pool mapping work completed by the Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR), has become interested in the potential of using the Brookside Mine Pool, which is drained by the Valley View Tunnel outfall, as a source of consumptive use mitigation/low flow augmentation water. Consequently, the Brookside Mine Pool could be utilized as an underground storage reservoir, storing water during times of heavy precipitation, possibly reducing flood flows, and discharging water during periods of drought to reduce the ecological impacts of drought flows and supply water to downstream water users.

Phase I of this project, which is funded through the Pennsylvania AMD Set-Aside Grant Program, will investigate the feasibility and cost of various options designed to transport flows, treat or convey discharges, and utilize the Brookside Mine Pool for consumptive use mitigation/ low flow augmentation storage. In FY-2017, subcontracted drilling is being performed to provide additional mine mapping details, water quality analyses, and water level data to facilitate engineering design. In FY-2018, engineering design, permitting, and solicitation/finalization of a construction funding source and contractor bid package will be performed. A construction contractor will be hired at a cost not to exceed \$100,000.

**Mocanaqua Tunnel** – The Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR), with assistance from American Energy Solutions, LLC (AES), will assess and delineate the Mocanaqua Tunnel area for optimum placement of the AES/CSI AMD treatment technology for remediation of Mocanaqua Tunnel mine pool water. Under Phase I of the project, review of underground, surface, elevation points, drill logs, and cross section maps will be conducted. Approximate mine pool boundaries located relative to on-going EPCAMR regional work will also be identified and an aerial coverage map of the Pinchot State Forest Lands and Project Area will be produced. Under Phase II of the project, optimum placement of AMD treatment technology will be identified, and the 3D Model will be updated using current Borehole elevations, water quality data, and flow monitoring data. The cost for assistance from EPMACR in FY-18 is estimated at \$80,000.

**Flow Ecology Study** - Water quantity and quality monitoring provide the data to assess the health of aquatic systems and support planning activities for the protection and restoration of aquatic resources. Few datasets exist that document the impacts of reduced flow on water quality and biological resources during actual events in the Susquehanna River Basin. Because of the paucity of data, increased monitoring during low flow events is a high priority that assists the Commission in assessing the effects of flow in managing water withdrawals and consumptive uses. Staff will continue to conduct low flow sampling during identified low flows during the late summer and early fall, in accordance to the quality assurance project plan (QAPP).

**Montage Mountain Fish Restoration** – In 2016, the Commission accepted settlement for environmental harm that resulted from failure of a regulated water user (Montage Mountain Resort) to adhere to a conservation release plan. Commission staff, in consultation with Pennsylvania Fish and Boat Commission (PFBC) and Pennsylvania Department of Environmental Protection (PADEP), will use proceeds from the settlement to implement a monitored natural attenuation plan within the reach that was harmed by Montage Mountain’s actions.

**Octoraro Watershed Agricultural BMPs** - The Alliance for the Chesapeake Bay (the Alliance), in partnership with the Octoraro Watershed Association (OWA) and the Environmental Finance Center (EFC), received a grant from the National Fish and Wildlife Foundation (NFWF) to implement agricultural BMPs on Plain Sect farms in the Octoraro Watershed. The project's main objectives are to install agricultural BMPs with a focus on source water protection, and to build the capacity of OWA and partners to continue the work after the grant is completed.

The Commission will participate in the project as a subcontractor to the Alliance. Commission staff will install two monitoring stations in streams near participating farms. The stations will continuously monitor water quality before and after BMP construction. Staff will also collect periodic grab samples to monitor nutrients. Data collected prior to and following construction will be compared to quantify the impact of the installed BMPs.

## **PRIORITY MANAGEMENT AREA E: CHESAPEAKE BAY**

### **Desired Result**

To manage the water resources of the Susquehanna River Basin to assist in restoring and maintaining the Chesapeake Bay so it meets or exceeds applicable water quality standards and supports healthy populations of living resources, including oysters, crabs, fish, waterfowl, shore birds, and underwater grasses.

### **Programs**

#### **AREA E: Chesapeake Bay**

Chesapeake Bay Monitoring and Water Quality Trends Analysis .....	\$	310,000
Chesapeake Bay Data Analysis & Reporting .....	\$	180,000
Chesapeake Bay Midpoint Assessment .....	\$	145,000
<b>Total</b>	<b>\$</b>	<b>635,000</b>

#### **Activities which will be conducted under Priority Management Area E: Chesapeake Bay**

**Chesapeake Bay Program Monitoring and Water Quality Trends Analysis** - This program was initiated in FY-1985, and provides data that are critical for calibration of the Chesapeake Bay watershed model and evaluation of tributary strategy activities. Monthly samples, baseflow samples and daily or more frequent samples during a minimum of five storms will be collected from the six (6) long-term monitoring sites on the Susquehanna River at Towanda, Danville, and Marietta, the Juniata River at Newport, the West Branch Susquehanna River at Lewisburg and the Conestoga River at Conestoga. Monthly and storm samples also will be collected at the 21 additional sites in Pennsylvania, New York, and Maryland that were established in FY-2004, FY-2005, and FY-2012. The Commission will continue to work with its member states, USEPA, and other partners to expand the monitoring network to support state tributary strategies and the overall Chesapeake Bay cleanup effort.

The Commission will use the data to analyze and update information from the long-term water quality monitoring program for the non-tidal tributaries in the Susquehanna River Basin. Data from newly established monitoring sites in Pennsylvania and New York will also be summarized for future trends analysis. The data and analysis will help demonstrate progress in meeting cap loads for the Susquehanna River Basin.

**Chesapeake Bay Midpoint Assessment** – Staff will provide assistance to PADEP in fulfilling Mid-Point Assessment tasks pursuant to the Bay Agreement between USEPA and the member jurisdictions. The Mid-Point Assessment was designed into the Bay TMDL process to provide the Partnership (e.g., CBPO and member jurisdiction agencies) an opportunity to pause, assess Bay TMDL and Watershed Implementation Plan (WIP) progress, and make adjustments as necessary to achieve the overall goals for Bay restoration. The scope of SRBC's activities includes, but is not limited to: calibration of the Phase 6 Watershed Model; recommendations for Local Area Targets; fatal flaw review of the Phase 6 Watershed Model; development of draft Phase 3 Watershed Implementation Plan (WIP); modeling forecasts for 2025 conditions; and, technical advisory participation as member of Bay-related work groups, expert panels, as well as policy/program stakeholder outreach activities.

## PRIORITY MANAGEMENT AREA F: COORDINATION, COOPERATION, PUBLIC INFORMATION AND ADMINISTRATION

### Desired Result

To maximize available human resources and achieve common and complementary management objectives by the Commission, its member jurisdictions and others; to promote the planning and management of the basin's water resources in the most efficient manner possible; to inform the public on the Commission's water management responsibilities; and to enhance the public's access to Commission information and decision making procedures.

### Programs

#### **Area F: Coordination, Cooperation, Public Information and Administration**

Watershed Coordination Functions and Activities .....	\$ 129,550
Public Information and Education .....	163,500
Planning (Comprehensive, Strategic, and Water Resources) .....	155,000
General Program Administration .....	581,500
Information Technology and Geographic Information Systems (GIS) .....	384,000
<b>Total</b>	<b>\$ 1,413,550</b>

#### **Activities which will be conducted under Priority Management Area F: Coordination, Cooperation, Public Information and Administration**

**Watershed Coordination Functions and Activities** - Coordination is an essential and mandated responsibility of the Commission. The purpose of the program is to minimize duplication of efforts, maximize limited resources and reduce conflicts among federal, state and local governments sharing responsibility for management of the basin's water resources. Specific coordination activities include management of the Water Quality Advisory Committee (WQAC) and the Water Resources Management Advisory Committee (WRMAC), and coordination with state and federal agencies such as the USACE, USEPA, USGS and the NWS.

**Public Information and Education** - Commission staff will continue to provide public information activities, work to enhance media relations, and increase the Commission's outreach in various regions of the basin. Staff also will continue established public information activities and efforts, such as periodic news releases, the Commission's web site, and the electronic annual report.

**Planning (Comprehensive, Strategic and Water Resources)** - The Commission maintains and, as necessary, updates both a Comprehensive Plan for managing the basin's water resources and program area strategic plans to guide the Commission's work programs and establish program priorities. Implementing the recommended actions of the Comprehensive Plan serves as the foundation for the Commission's annual Water Resources Program. In FY2018 the Commission will also develop and adopt a new 5-year strategic plan.

**General Program Administration** - Internal and external meetings occur that do not relate directly to specific Commission programs. In addition, time is spent on program development, budgeting, periodic program summaries, annual reports, and responses to our signatory members. This budget category also includes costs for the Commission's administrative personnel and programs, such as executive, finance, and human resources.

**Information Technology and Geographic Information Systems (GIS)** - The importance of the Commission's information technology systems continues to grow. The Commission will continue to enhance our proprietary systems and Internet-based databases, and will strive to make increasing amounts of data available electronically via our website, including both water quality and water quantity data. We will also work to develop new systems and processes to share data internally and externally.