

3.5 Objectives and Actions for Sustainable Water Quality

Goal - To protect and improve water quality throughout Barnegat Bay and its watershed by addressing the causes of water quality degradation to achieve swimmable, fishable and drinkable water, and to support aquatic life.					
WQ Objectives	WQ Action ID	CCMP Action	Possible Partner Commitments	Time-frame	Cost?
1. Reduce sources of nutrients, contaminants, debris and other pollutant loadings from point and nonpoint source pollution.					
	1-1	<p>Support development and implementation of a Barnegat Bay TMDL(s) (Total Maximum Daily Load), including the development and use of a Barnegat Bay validated biological indices of water quality, to address nutrient and other pollutant loadings and to guide science based future management decision.</p> <p>METRICS: Nitrogen & other pollutant reductions (x%) to achieve ecosystem targets.</p> <p>MILESTONES:</p> <p>1-1a: Review relevant nutrient and other pollutant loadings and other information as available and make recommendations to establish and implement TMDL based on best available science;</p> <p>1-1b: Promote information exchange & consensus building on implementation priorities and make recommendations based on best available science;</p>	NJDEP, EPA, USGS, BBP	M	\$\$\$

		<p>1-1c: Promote, support and conduct monitoring, planning to help inform and guide decision making</p> <p>1-1d: Promote adaptive, ecosystem-based management using best available science and giving due consideration to climate change to achieve nutrient reductions and ecosystem targets.</p>			
	1-2	<p>Develop/revise and implement Watershed Plans (i.e. WQMP/319 and Watershed Management Plans) at the sub watershed level.</p> <p>METRICS: Number of plans developed, funded, and implemented together with estimated nutrient reductions.</p> <p>MILESTONES: 1-2a: Using NJDEP WQ and other data, develop WQMP/319 and Watershed Management Plans 1-2b: Identify, promote and support funding of plan development. 1-2c: Implement plans and estimate nutrient and other pollutant reductions.</p>	EPA, NJDEP, NJDOT, Counties, Municipalities, Utility Authorities (208 Plan), BBP	L	\$\$\$\$
	1-3	<p>Fully implement the Soil Restoration Law and associated comprehensive soil restoration procedures for various land use activities.</p> <p>METRICS: Reduction in stormwater nutrient and other pollutant loads off the developed landscape.</p> <p>MILESTONES:</p>	NJDA, NJDEP, NJDOT, Counties, Municipalities, Soil Conservation Districts, Utility Authorities	M	\$\$

		<p>1-3a: Implement existing and/or develop revised (county or statewide?) soil restoration standard with supporting assessment and cost-benefit justification.</p> <p>1-3b: Work with partners to promote review and consideration of soil restoration standard.</p> <p>1-3c: Once adopted, assist with implementation of soil restoration standard.</p> <p>1-3d: Promote and assist with periodic (every 5 years) assessment of nutrient loadings from the developed landscape (?).</p>			
	<p>1-4</p>	<p>Support implementation and enforcement of stormwater rules and ordinances at state, county and municipal levels.</p> <p>METRICS: 100% Compliance with SW rules as reported by NJDEP Municipal Compliance Assistance Program Review to achieve X% nutrient reduction with 6 years (2 review cycles)</p> <p>MILESTONES:</p> <p>1-4a: Develop Municipal Stormwater Compliance Assistance Program with Toms River as the pilot (include Objectives 1-5 to 1-3 below, where feasible). As part of the program, compile checklist of township problems, demonstration projects, use of BMPs and other novel, effective practices.</p> <p>1-4b: Develop recommendations and cost estimate for Toms River compliance/improvement.</p>	<p>NJDEP Municipal SW Compliance/Assistance Program: NJDEP, Counties, Municipalities, Soil Conservation Districts, Others</p>	<p>L</p>	<p>\$\$\$\$</p>

		<p>1-4c: Use that information to prioritize and develop schedule of towns for review so that all towns are reviewed every three years. Develop draft annual funding commitment recommendations.</p> <p>1-4d: Initiate review and recommendations together with concurrent funding commitment to make improvements.</p> <p>1-4e: After 5 years, assess impact of enhancements and improvements.</p> <p>1-4f: Communication program developed for Toms River, revise for use within each town as completed.</p>			
	<p>1-5</p>	<p>Identify and map all stormwater basins; develop tools, assess, prioritize, and implement basin retrofits to reduce nutrient and sediment loadings to the bay. Incorporate into NJDEP Municipal SW Compliance/Assistance Program.</p> <p>METRICS: Within 5 years, reduce stormwater basin loadings of nitrogen, phosphorus, and TSS by x% (different for each) from current load estimates. Within 10 years, reduce nutrient levels by 2x% from current load estimates.</p> <p>MILESTONES: 1-5a: ID and map all basins.</p> <p>1-5b: Develop basin assessment program (e.g., infiltration, nutrient management) and assessment schedule (Separate from or as part of WQ 1-1?)</p>	<p>NJDEP Municipal SW Compliance/Assistance Program: NJDEP, Counties, Municipalities, Soil Conservation Districts, Mosquito Commissions</p>	<p>L</p>	<p>\$\$\$\$</p>

		<p>1-5c: Develop BMP manual with basin tools.</p> <p>1-5d: Develop and establish funding stream/commitment.</p> <p>1-5e: Implement assessment program (3-5 basins per year per town, schedule to address all existing basins over 20 years?)</p> <p>1-5f: Develop plans to improve at least 1-2 priority (worst) basins annually.</p>			
	1-6	<p>Identify sources and reduce pollution inputs from roadways and yard maintenance (pesticides, herbicides, fertilizer, deicer and automotive waste). Incorporate into NJDEP Municipal SW Compliance/Assistance Program</p> <p>METRICS: Reduce chemical usage by responsible entities and reduce collected road waste (road sweeping and applications)</p> <p>MILESTONES:</p> <p>1-6a: Review chemical usage and application policies (provided via DOT/other permit requirement?) and pursue greener alternatives, where appropriate.</p> <p>1-6b: Review roadway waste, flooding, and other information (tributary data) to identify problem “hot spots” for each municipality or other responsible agency.</p> <p>1-6c: Develop and prioritize improvement plan with estimated cost for each municipality.</p>	NJDEP Municipal SW Compliance/Assistance Program: Counties, Municipalities, NJDOT	L	\$\$\$\$?

	<p>1-7</p>	<p>Map all stormwater BMP projects within the watershed.</p> <p>Incorporate into NJDEP Municipal SW Compliance/Assistance Program</p> <p>METRICS: List of all BMP projects, with summary information regarding project type, features, etc.</p> <p>MILESTONES: 1-7a: Develop information gathering process. 1-7b: Develop mapping and informational template. 1-7c: Acquire and update map and information annually as part of NJDEP Municipal SW Compliance/Assistance Program.</p>	<p>NJDEP Municipal SW Compliance/Assistance Program: Counties, Soil Conservation Districts, RCE, BTMUA, BBP</p>	<p>M</p>	<p>\$</p>
	<p>1-8</p>	<p>Identify sources and reduce pollution inputs from marinas and boating activities.</p> <p>SUGGEST MARINAS INCLUDED AS PART of 1-1, MSW COMPLIANCE PROGRAM, where appropriate.</p> <p>METRICS: reduction in pollution inputs from marinas and boats.</p> <p>MILESTONES: 1-8 a-d: ID and list marinas and their needed improvements, then estimate overall funding commitment, and implement improvements annually. 1-8e: Assess pollution inputs from other boating sources (fuels, trash, derelict vessels?).</p>	<p>NJDEP Clean Marina and Clean Vessel Program partners, OCHD, Counties, Utility Authorities, Municipalities, Marine Trades, EPA</p>	<p>L</p>	<p>\$\$\$\$</p>

		<p>1-8f: Work with existing programs and partners to reduce pollution (e.g., trash).</p> <p>1-8g: Target/fund additional law enforcement, where necessary, at priority problems.</p>			
	1-9	<p>Identify sources and reduce pollution inputs from livestock, agriculture and wildlife.</p> <p>METRICS: Reduce nutrient inputs (nitrogen, phosphorus,) from livestock, etc. by x%.; reduce the number of listed waterbodies /stream segments impaired by pathogens (i.e., Canada geese) by two-three within 5 years and by X within 10 years.</p> <p>MILESTONES:</p> <p>1-9a: Assess nutrient inputs from livestock on farms, ranches, ag, and animal husbandry/other facilities.</p> <p>1-9b: ID all waterbodies that are pathogen-impaired by Canada geese</p> <p>1-9c: Develop plans, including cost estimates, to reduce nutrient loading at operations identified in 1-9a with existing USDA, NRCS, NJDEP, NJDA, and other fund sources.</p> <p>1-9d: Implement plans as funds allow to achieve nutrient-reduction objective within 5 years; otherwise increase funds</p> <p>1-9e: Develop priority, schedule, and plans to remove listed pathogen impairments via goose control, buffers, and or other projects.</p>		L	\$\$\$

		<p>1-9f: Identify funding streams and implement plans.</p> <p>1-9g: Delist waterbodies via state/federal review processes</p>			
2. Assess status trends of water quality throughout the watershed.					
	2-1	<p>Maintain, review, and revise as necessary the existing comprehensive water quality ambient monitoring program throughout the watershed.</p> <p>METRICS: The extent of the bay and its tributaries that are covered by the existing comprehensive water quality monitoring program and the water quality parameters (e.g., DO, temperature) that are included in the program.</p> <p>MILESTONES: 2-1a: Periodic review of existing comprehensive monitoring plan findings, including identification of monitoring and data gaps and compilation of problem findings (e.g., exceedance of criteria). 2-1b: Cost estimation, justification, and schedule of addressing data gaps in revised monitoring plan.</p>	<p>NJDEP, USGS, BBP, JCNERR, OCHD, Monmouth University, Stockton University, BTMUA</p>	L	\$\$\$\$
	2-2	<p>Continue to identify the current status and trends in water quality within the watershed (NJDEP Integrated Report, BBP State of the Bay Report), and identify pollutant sources and magnitudes.</p> <p>METRICS: Completion of status and trends reporting in DEP Integrated Reports and BBP SOTB reports, including estimation of nitrogen and phosphorus source</p>	<p>NJDEP, BBP, USGS, BTMUA, others?</p>	L	\$\$

		<p>loading on regular schedule (i.e., at least every five years).</p> <p>MILESTONES: 2-2a: Assemble BBP SOTB Workgroup one year prior to anticipated date of publication and develop SOTB QAPP. 2-2b: Complete draft SOTB report for external review. 2-2c: Revise report as per review and publish. 2-2d: Hold SOTB Symposium. 2-2e: Complete integrated report every other year, and review listings of impairments within BB. 2-2f: Review “off-year” report for Barnegat Bay watershed.</p>			
	<p>2-3</p>	<p>Support the continuation of the existing beach monitoring program, and conduct and evaluate an expansion of monitoring to include known recreational areas of high public use, <i>e.g.</i>, Tice’s Shoal, F-Cove, Pine Lake, Cedar Creek, <i>etc.</i></p> <p>METRICS: Number of recreational beaches of high public use with percentage of those covered by regular/periodic monitoring programs.</p> <p>MILESTONES: 2-3a: Generate annual list of recreational beaches, including process to identify those receiving high public use.</p>	<p>OCHD, NJDEP</p>	<p>L</p>	<p>\$\$</p>

		<p>2-3b: Identify those to be assessed regularly; if 100% of high-use beaches are not monitored, develop justification for those to share with elected officials at state and local levels.</p> <p>2-3c: Develop agreed-upon signage program for non-monitored beaches.</p>			
<p>3. Conduct studies to improve scientific understanding of new and emerging issues pertaining to the chemical, physical, and biological conditions and dynamics in the Barnegat Bay and its watershed.</p>					
	<p>3-1</p>	<p>Support completion and expansion of source tracking for bacteria, pathogens, and novel and other pollutants.</p> <p>METRICS: Number of source-tracking studies conducted for bacterial, pathogenic, novel and other pollutants every 5 years.</p> <p>MILESTONES:</p> <p>3-1a: STAC periodically reviews available data of bacteria and pathogenic bacterial and novel contaminant “hotspots” and compile into draft report.</p> <p>3-1b: STAC workgroup develops agreed-upon process (i.e., QAPP); prioritizes source-tracking problems into report, distributed to partners and local and state officials.</p>	<p>EPA, NJDEP, OCHD, Counties, Utility Authorities, Municipalities</p>	<p>L</p>	<p>\$\$</p>

		3-1c: Commit STAC funding, when feasible and available.			
	3-2	<p>Continue to identify and address data gaps and water quality issues of emerging concern (e.g. coastal acidification, watershed salinity increases, etc.)</p> <p>METRICS: Number of recognized data gaps and identified issues of emerging concern identified by partners and the public compiled and reviewed every 5 years.</p> <p>MILESTONES: 3-2a: STAC workgroup compiles and reviews available data gaps into draft report.</p> <p>3-2b: STAC workgroup prioritizes data gaps and issues with funding justification for partners and local and state officials.</p> <p>3-2c: Commit STAC funding, when feasible and available.</p>	BBP STAC	L	\$\$
	3-3	<p>Continue to support research that identifies and quantifies the sources and fates of nutrients within the watershed and bay.</p> <p>METRICS: Number of studies of sources and fates of nutrients conducted every 5 years.</p> <p>MILESTONES: 3-3a: STAC workgroup compiles list of published studies of nutrient sources and fates within past 5 years, and summarizes data gaps for funding consideration with funding justification.</p>	NJDEP, USGS, EPA, BBP	L	\$\$

		3-3b: Commit STAC funding, when feasible and available.			
4. Increase public education, engagement, and stewardship regarding water quality in the watershed.					
	4-1	<p>Develop and promote training and education/outreach programs to help municipalities address stormwater pollution issues and implement stormwater regulations.</p> <p>METRICS: Number of municipalities receiving training and education/ outreach programs addressing stormwater pollution.</p> <p>MILESTONES: 4-1a: Identify and review existing stormwater training and education/outreach programs for effectiveness. 4-1b: Use existing and/or develop new training and education/outreach programs for key target audiences, including officials, residences, businesses, and schools. 4-1c: Commit CEC funding, when feasible and available.</p>	NJDEP, JCNERR	M	\$
	4-2	Share Barnegat Bay-friendly ordinances and establish a Jersey-Friendly Yards certification and training program for homeowners, businesses, and landscaping professional to promote practices that reduce non-point source pollution.	ANJEC	M	\$

		<p>METRICS: Adoption of ordinances, number of certifications, and number of education recipients implementing best practices.</p> <p>MILESTONES: 4-2a: Review model ordinances, revise as needed, and distribute to municipalities. 4-2b: Develop JFY certification and other education/outreach programs. 4-2c: Implement programs with BBP/other funding (e.g., fees)</p>			
	4-3	<p>Implement components of the BBP Communications Plan related to water quality improvement</p> <p>METRICS: Number of BBP Comm. Plan components implemented and their effectiveness.</p> <p>MILESTONES: N/A: contingent on development of specific programs.</p>	BBP, Save Barnegat Bay, JCNEER, NJDEP	L	\$?