

October-December 2018 Quarterly Report

Strategic Plan Implementation

Mission

The Pennsylvania Fish and Boat Commission's mission is *to protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities*. The mission reflects our statutory responsibilities in section 321 of the Fish and Boat Code, 30 Pa. C.S. §321, relating to:

- The encouragement, promotion and development of fishery interests.
- The protection, propagation and distribution of fish.
- The management of boating and the operation of boats.
- The encouragement, promotion and development of recreational boating.

Vision

By 2017, the Pennsylvania Fish & Boat Commission will provide high quality services to insure essential resource management and protection and improved fishing and boating recreation; engage targeted audiences in safe fishing and boating; and maintain and improve the agency's workforce and physical infrastructure.

Values

The Commission's values are our guiding principles. These statements outline the behaviors that are expected of all employees, Commissioners, Boating Advisory Board members, and volunteers. Evident in our daily decision making, our values impact every aspect of our organization.

- We are committed to prudently managing the Commonwealth's aquatic resources.
- We are committed to providing high quality public service.
- We are committed to being wise stewards of the assets entrusted to us.
- We are committed to creating a positive and cooperative work environment where staff are given the opportunity to develop their expertise and ideas are openly exchanged, acknowledged, and respected.

Preamble

This strategic plan will guide agency operations from July 2014 through June 2017. The previous strategic plan was adopted in July 2010, amended slightly in January 2012, and intended to last from July 2010 until June 2015. Due to significant fiscal constraints driven largely by impending increases in health care and retirement costs that the agency is required to bear, the Board of Commissioners determined that the plan needed to be revised to reflect the new fiscal realities.

Mandatory personnel costs beyond the agency's control are expected to be over \$9 million annually by fiscal year 2016-17 and constitute about 20% of annual spending. Just before the strategic planning process started in earnest, the agency began developing an internal Spending Reallocation Plan (SRP) that shifted spending to accommodate the ballooning health care and retirement costs. Absent an influx of revenue to meet the rising personnel costs, this new strategic plan is constrained by more austere fiscal realities than the past plan. In the words of the Executive Director, the agency will be doing "less for less." The SRP limits the levels of services the agency will be able to deliver, and activities will ultimately be scaled according to available staff and financial resources.

This plan follows the SMART goal format that characterized the previous plan and that has become a fundamental part of how the agency operates. Adherence to the SMART approach means that each goal needs to meet the following five criteria:

- S – Specific
- M – Measurable
- A – Action-oriented
- R – Realistic
- T – Time-bound

Unlike the previous strategic plan that focused mainly on new initiatives, this plan is intended to capture the universe of activities that the agency will focus on from July 2014 – June 2017. To pursue the goals laid out in this plan, the agency acknowledges the need to maintain core support functions such as administration; human resources; fisheries and hatcheries; law enforcement; information technology (IT); legal; legislative and public relations; and engineering, maintenance, and other support services to operate agency facilities.

Fulfilling its mission and implementing this plan requires the agency to rededicate itself to working with partner organizations. In addition to working with others to achieve programmatic goals, the Commission will look to partners to help offer fishing and boating infrastructure since providing fishing and boating opportunities does not mean that the agency has to own or manage an area.

Waterways Conservation Officers

One of the primary core functions of the agency is law enforcement. A Waterways Conservation Officer (WCO) is a specialized conservation police officer employed by the Commission's Bureau of Law Enforcement (BLE). After successful completion of a stringent training program, WCOs may be assigned to a law enforcement district anywhere within the Commonwealth, where they are required to perform specialized law enforcement work in fisheries conservation and watercraft safety. Typical duties include patrolling by foot, vehicle, or boat to detect, pursue, and apprehend violators. WCOs issue citations or warnings, file criminal complaints, serve warrants, present evidence at hearings and court proceedings, investigate water pollution and encroachment incidents, investigate boat accidents, and stock fish. WCOs make public appearances to conduct educational classes or provide information to the

public. Additionally, WCOs coordinate the work of a corps of Deputy Waterways Conservation Officers at the district level.

WCO duties are critical to and interwoven with the conservation and recreation goals outlined below. Therefore, through 2017, the Commission will continue to maintain a vigilant corps of WCOs to enforce fishing, boating, and environmental laws and regulations; assist the Commission in meeting recreation goals; and promote public safety.

Funding

Issue 1: Revenues are insufficient to support the Commission's current levels of programs and services and meet increasing fixed, variable, and mandatory personnel costs.

As outlined in the preamble, the Commission is required to meet mounting health care, retirement, and other personnel obligations beyond its control while also dealing with the increasing costs of doing business that face any agency or company. To meet its obligations and maintain agency operations, the agency is reallocating spending while living within its means. Concurrent with narrowing the scope of its activities, the agency needs to maximize the funding generated from the traditional revenue streams of fishing license sales and boat registrations while also pursuing new sources of revenue to support the work it performs on behalf of aquatic resources, anglers and boaters, and individuals and businesses throughout Pennsylvania.

Strategy 1A: Reduce expenses and reallocate spending.

Goal 1A: Implement a Spending Reallocation Plan within which the Commission does not spend more than it generates in revenue each fiscal year and maintains agency administrative and support services necessary to deliver programs and services.

- A. Through June 2017, implement, review, and update the Spending Reallocation Plan (SRP) to reflect evolving fiscal realities.
- B. By July 2015, present updated SRP to the Board of Commissioners.
- C. Through June 2017, work with PFBC staff and partners to identify and implement projects using restricted revenue account funds to address settlement agreement conditions and PFBC priorities.

Strategy 1B: Increase traditional revenue sources and secure alternative funding to deliver core programs and services to benefit anglers, boaters, and trust species; deliver select discretionary programs and services to benefit all Pennsylvanians; and meet mandatory personnel costs.

Goal 1B: Increase revenues.

- A. Through June 2017, implement operational decisions to increase revenues.
 - 1. Continue to grow Natural Gas and Water Access programs.
 - 2. By June 2017, develop, implement, and evaluate annual marketing campaign plans designed to increase license sales (and corresponding federal reimbursements) by 10% through the end of license year 2017.

3. By July 2015, secure dedicated funding to support the water rescue program.
- B. Through June 2017, advocate for legislative solutions to maintain and increase revenues.
1. Identify, develop, and advocate for state legislative opportunities to maintain and increase agency revenues.
 - *Continued to advocate for the passage of Senate Bill 30 and other legislation aimed at providing a reliable funding stream for the commission*
 2. In cooperation with the Association of Fish and Wildlife Agencies (AFWA), advocate for federal legislation to maintain and increase agency revenues.
 - *As the 115th Congress nears its closing, the “Recovering America’s Wildlife Act” (H.R. 4647, 2017-2018), introduced in the U.S. House of Representatives in December 2017, continues to gain bipartisan support. As of December 3rd, the bill has 112 co-sponsors including seven members of the Pennsylvania delegation. At the national level, the bill proposes to provide dedicated, long-term funding (\$1.3 billion annually) for states to implement their State Wildlife Action Plans which includes the 2015-2025 Pennsylvania Wildlife Action Plan. In July, a companion Senate bill (S.3223) was introduced by Congressman Risch (ID) and Congressman Manchin (WV) and currently has 6 co-sponsors. The funding level for this bill is identical to H.R. 4647 and would provide crucial support for imperiled species, yet a notable difference is the provision of annual funding, not secure, dedicated funding needed for the long-term recovery and management of these species. It is expected that if the legislation is not passed in this Congress, it will be re-introduced early in the next session. If approved at the proposed level, Pennsylvania would receive approximately \$34 million annually (shared equally between the Fish and Boat Commission and Game Commission). These funds require a 25% match.*
- C. Through June 2017, promulgate regulatory changes to increase revenues.
1. By January 2015, require senior resident lifetime license holders to purchase a trout/salmon permit annually to fish for trout.

Conservation

Issue 2: Current and increasing threats to our aquatic resources demand the Commission provide high quality services to insure essential resource management and protection and improved fishing.

High quality fishing opportunities require healthy, functioning ecosystems comprised of diverse aquatic communities. Pennsylvania’s fish, amphibians, reptiles, and other aquatic resources face a number of threats, including power generation and associated fossil fuel extraction and transmission line construction; municipal and industrial surface and ground water withdrawals; point and non-point discharges; road construction and other encroachments; and the introduction and proliferation of invasive species. Continued assessment of the quality of our Commonwealth’s aquatic resources and prudent implementation of fisheries management programs assures high quality angling in the waters of the Commonwealth. The following priority actions build on past successes to protect, conserve, and enhance both game and non-game species and their habitats in support of the Commission’s Resource First philosophy.

Strategy 2: Provide high quality resource management and protection to reduce the impacts of current and increasing threats to aquatic resources.

Goal 2: Protect, conserve, and enhance aquatic resources and habitats.

A. By January 2015 complete a revision to the *Strategic Plan for Management of Trout Fisheries in Pennsylvania* to include the following: *Staff completed an update of the Strategic Plan for the Management of Trout Fisheries in Pennsylvania to guide trout management efforts for the period of 2018-2022. This document is currently undergoing internal review prior to release to the public and full implementation; however, implementation of some aspects of the update carry over from the previous plan and are underway.*

1. Through June 2017, continue efforts to improve Pennsylvania's tailwater trout fisheries.
 - *Staff continued implementation of the Joint Fisheries Investigation Plan; a 3-year investigation to collaboratively collect biological and social data pertaining to the upper Delaware River tailwater trout fishery in coordination with the NYDEC. In cooperation with the NYDEC, staff collected fisheries independent and dependent data per plan guidelines to update management of this valuable interjurisdictional resource. Young-of-the-year (YOY) and adult trout electrofishing surveys were completed at all sites, except main stem YOY survey sites. YOY were well represented in all tributaries surveyed. Adult collections were influenced by the high river conditions, but catch rates were relatively high, and numerous trophy-size trout were captured. Kayak angler counts were canceled for October due to high river flow. All field activities for the 2018 season were completed. It is anticipated similar effort will continue for 2019, beginning in April.*
 - *As part of a multi-agency temperature monitoring study among USACE, USFS and PFBC, seven temperature/conductivity data loggers were deployed in the Allegheny River, sections 07 and 08. The purpose of this study is to compare temporal differences between both left and right descending banks and to assess conductivity levels from a known discharging brine plant in Warren, PA. Over the next few months PFBC staff will work with USACE to analyze the results and make recommendations regarding potential flow regimes to protect and enhance the existing warm/cool and coldwater water fish populations that currently reside in this portion of the Allegheny River and optimize recreational angling opportunities at this tailwater fishery.*
2. Immediately begin implementation of recommendations from the stocked trout efficiency study.
3. By December 2015, design an angler survey to provide a statewide assessment of angler use, angler catch, angler opinions, and an economic contribution of trout angling on trout stocked lakes in order to make informed decisions regarding future trout stocking allocations in lakes.

4. By December 2015, complete evaluations of all current fingerling stocking efforts and provide recommendations for future implementation of the program.
 - *As part of fingerling trout stocking evaluations, a water temperature data logger was deployed in the Schuylkill River, Schuylkill County. Additionally, basic water chemistry data recorded at the time of the fingerling trout stocking was suitable for trout survival. An electrofishing to estimate short-term survival of stocked fingerlings is planned for later this quarter.*
- B. Through June 2017, continue implementation of river management plans for the Delaware, Susquehanna, and Three Rivers systems.
 1. Efforts specific to all three river systems will include:
 - a. Maintenance of long-term adult and young-of-year Smallmouth Bass data sets.
 - *Division of Fisheries Management personnel continued long-term adult Smallmouth Bass monitoring efforts at some historic survey locations at large rivers across the Commonwealth. However, persistent high flows precluded surveys at some rivers.*
 - b. Sampling requirements specific to meeting objectives outlined in the species-specific warmwater management plans for Muskellunge, Walleye, and Catfish.
 - *Division of Fisheries Management personnel conducted young-of-year Walleye investigations at select lotic and lentic waters per guidance outlined in A plan for the Management of Pennsylvania's Inland Walleye Fisheries. These surveys provided insight regarding potential contribution to the fisheries from Walleyes stocked as fry and/or fingerling and the continuance of stocking to sustain fisheries. Additionally, otoliths were extracted from a sample of YOY Walleyes at select waters for mark detection (oxytetracycline) and microchemistry analysis to determine the contribution to the fisheries from stocked Walleyes. Consistently high flows forced cancellation of most planned catfish and Muskellunge work on lotic waters during this quarter.*
 2. Efforts specific to the Susquehanna River will include:
 - a. Continued participation on interagency technical committees assessing water quality of the Susquehanna River and the impacts to the Smallmouth Bass population.
 - *Staff attended the Susquehanna River Heartland Coalition for Environmental Services Susquehanna River Symposium annual meeting at Bucknell University. Staff participated in a meeting of the River Stewards database workgroup at Harrisburg University. This was the second meeting to discuss potential partners and data sharing opportunities. The meeting was attended by DEP, PA Department of Conservation and Natural resources, SRBC, and other non-profit and academic partners. Staff attended a quarterly meeting of the Geisinger Pharmaceutical Disposal workgroup in Danville. The workgroup addresses methods to*

limit improper disposal and over-prescription of pharmaceuticals to reduce transmission to waterways.

- b. With partners, implement a fish community sampling procedure to more broadly track the condition of the fishery.
 - c. By June 2017, identify a method and criteria to determine the impairment status of the river.
 - *Staff assisted DEP and USGS with collection of adult Smallmouth Bass for on-going disease analysis and immune function evaluation at Pine Creek (9A) and West Branch Mahantango Creek (6C). This collection was part of ongoing USGS disease, contaminant, and immune function research and how it relates to land use.*
3. Efforts specific to the Three Rivers will include cooperation with Ohio River states to expand our knowledge regarding the expansion of Asian carp in the Ohio River system and reduce or eliminate the threat to the river's ecology.
 - *Staff conducted annual Asian carp surveillance monitoring on the Ohio River in the Montgomery Slough backwater portion of Section 03. No Asian carp were captured, and bycatch of other species was low. Staff participated in Asian Carp Regional Coordinating Committee (ACRCC) monthly conference calls to discuss Asian carp activities in the Great Lakes and Upper Mississippi River basins. Staff reviewed ACRCC FY 2019 Asian Carp Action Items and Asian Carp Action Plan. Staff prepared the fiscal year 2019 project proposal for the Water Resources Reform and Development Act (WRRDA) Asian carp grant and participated in the WRRDA Ohio River Basin conference call to discuss FY 2019 project proposals for Asian Carp surveillance, monitoring, sampling, and deterrence in the Ohio River Basin.*
 4. Efforts specific to Delaware River will include:
 - a. Annual monitoring of American Shad populations at historic stations.
 - *Atlantic States Marine Fisheries Commission (ASMFC) mandated YOY American Shad beach sein surveys per the Delaware River Fish and Wildlife Management Cooperative (Co-op) were canceled at all historic sites due to exceptionally high Delaware River flow. Due to the inability to sampling during 2018, the Co-op cannot quantify 2018 YOY production. As such, the Co-op has informed ASMFC, which determined that the basin states unable to monitor due to unworkable river conditions in 2018 will not be considered out of compliance.*
 - b. American Shad spawning activities to support restoration efforts.
 - *Staff initiated data analysis of the American Shad Smithfield Beach annual adult spring spawning run and gathered meteorological and riverine data to generate standardized annual estimates of relative abundance.*
- C. By January 2015, complete the 2nd edition of the Lehigh River Fisheries Management Plan.

- D. Through June 2017, implement gamefish management plans for Muskellunge, Walleye, and Catfish.
- *Staff revised a draft update to the Walleye management plan which is anticipated to be finalized during the first quarter in 2018.*
 - *Staff conducted targeted sampling in support of the Walleye and Muskellunge management plans.*
- E. By June 2017, complete the development of a strategic plan for the management of black bass in Pennsylvania.
- *Staff continue to work toward completion of the strategic plan for the management of black bass in Pennsylvania. A draft of the human dimension portion of the plan was completed during 2017, and a draft of the full plan is anticipated by the end of 2019.*
- F. By June 2017, facilitate or complete population inventories and home range assessments for Timber Rattlesnake, Blanding's Turtle, Eastern Massasauga, Bog Turtle, Eastern Mud Salamander, Rough Green Snake, Broadhead Skink, New Jersey Chorus Frog, Southern Leopard Frog, Kirtland's Snake, Northern Cricket Frog, Eastern Redbelly Turtle, Eastern Pearlshell, Dwarf Wedgemussel, Bluebreast Darter, Tippecanoe Darter, Gilt Darter, Iowa Darter, Eastern Sand Darter, Spotted Darter, Black Bullhead, Bowfin, and Horneyhead Chub.
- *Timber Rattlesnake Assessment Project (TRAP): PFBC staff entered data from TRAP assessments conducted in the previous quarter.*
 - *The PA Amphibian and Reptile Survey (PARS) project, PARS Phase 2 (2017-2021) is underway. This quarter, 381 records were submitted to PARS, 39 records being herp species of greatest conservation need. To date, 1,889 volunteers have participated in the atlas project. Focal teams (Kirtland's Snake, Eastern Redbelly, Eastern Mud Salamander, Blanding's Turtle) logged 2 records of these targeted species in the quarter. Records for the period are still being entered by volunteers and these numbers will increase as reporting continues in winter of 2018.*
 - *Competitive State Wildlife Grant project for Conservation of the Bog Turtle Bog Turtle inventory work (Chester County) was conducted during the quarter. The work is contracted with the Mid-Atlantic Center for Herpetology and Conservation. Habitat assessments and cursory surveys were conducted at five sites that had been identified from aerial photo analysis. Landowners were contacted and two additional were lined up for the next field season.*
 - *A proposed rulemaking was presented by NDS staff and approved by the Commissioners at the July Commission meeting for a fish listing/delisting package: Blacknose Shiner (endangered), Pugnose Minnow (endangered), Eastern Mudminnow (delist), Central Mudminnow (delist), Gravel Chub (delist), and Banded Sunfish (delist). The 30-day public comment period for this rulemaking opened on December 8.*
 - *Inventory of Blanding's Turtles in PA continues under a Competitive SWG Grant. The PFBC is conducting radio telemetry on one turtle in Erie, and this turtle was monitored throughout the quarter to establish its home range, and brumation (hibernation) habitat. An in-person meeting of the grant participants was attended in November to coordinate grant activities and plan for an augmentation project.*
 - *The results of the rangewide study of the genetics and distribution of the Atlantic Coast Leopard Frog, now shown to replace records of the Southern Leopard Frog in*

Pennsylvania, were published in PLOS in November. (Schlesinger MD, Feinberg JA, Nazdrowicz NH, Kleopfer J, Beane JC, Bunnell JF, et al. (2018) Follow-up ecological studies for cryptic species discoveries: Decrypting the leopard frogs of the eastern U.S. PLoS ONE 13(11): e0205805.

<https://doi.org/10.1371/journal.pone.0205805>)

G. Through June 2017, continue implementation of statewide action plans for the following species: Eastern Pearlshell Mussel, Bog Turtle, Eastern Massasauga Rattlesnake, and Timber Rattlesnake.

- *Under the Competitive State Wildlife Grant project for Conservation of the Bog Turtle, the regional database is close to ready to be used by state biologists. Staff participated in a symposium for the rangewide populations of the Bog Turtle in Richmond, Virginia. Staff presented the results of the 5-year monitoring of development sites study and continue working on refining the draft conservation plan.*
- *The Timber Rattlesnake monitoring strategy project with East Stroudsburg University is ongoing.*
- *Section 6 grant proposals to survey the historic range and gap areas of the Eastern Massasauga and continued inventory surveys for Bog Turtles were submitted during this quarter. Both proposals were approved for funding.*
- *The Eastern Pearlshell, Bog Turtle, Timber Rattlesnake, Eastern Massausaga, and Eastern Spadefoot state Species Action Plans (SAP's) are currently under revision.*

H. By December 2014, research and finalize statewide action plans for the Salamander Mussel and Chesapeake Logperch. Through June 2017, implement these plans.

- *Species Action Plans for the Salamander Mussel and Chesapeake Logperch were developed and finalized in December 2014. Implementation of the action plans is underway.*
- *PFBC staff reviewed and has provided ongoing input to a USFWS draft conservation strategy for the Chesapeake Logperch. A population genetics project was developed and initiated with the PFBC, FWS, and PSU. Sample collection began in November 2017 and continued through 2018. A Competitive State and Tribal Wildlife Grants proposal was developed, submitted, and funded by the USFWS to address the life history research knowledge gaps and to develop a reintroduction strategy. This is a multi-state regional grant includes Maryland Department of Natural Resources, the Pennsylvania State University, Susquehanna River Basin Commission, and Conservation Fisheries Incorporated (Knoxville, TN).*
- *Several projects are ongoing that implement the Salamander Mussel action plan. PFBC staff developed priorities for the Wild Resource Conservation Program (WRCP) for Salamander Mussel work needed as per the Species Action Plan. Two WRCP-funded projects (Western PA Conservancy, Mid-Atlantic Center for Herpetology and Conservation) to assess the Mudpuppy (*Necturus maculosus*, only known host for the Salamander Mussel) in the Ohio Basin. These efforts documented Mudpuppy occurrences in Allegheny River navigational pools 5 and 6 as well as in the Montgomery and Dashields pools of the Ohio River, and multiple locations in the Monongahela River and tributaries. Salamander Mussel surveys in 2019 will target*

- sites that contained a high relative abundance of mudpuppies. Another WRCP grant was recently awarded to the Western Pennsylvania Conservancy to develop Mudpuppy population estimates. These data, along with bathymetric mapping and ground-truthing via SCUBA diving will help PFBC develop a better understanding of what constitutes ideal Salamander Mussel habitat and lead to developing recommendations for how and where to target Salamander Mussel habitat restoration*
- I. By June 2015, work with other members of the Pennsylvania Natural Heritage Partnership to complete the upgrade to the Pennsylvania Natural Diversity Inventory environmental review tool.
- *Upgrades and maintenance to the PNDI tool are ongoing. Data is updated by DCNR on a quarterly basis; one update was implemented in the quarter.*
- J. By June 2017, assist the Pennsylvania Department of Environmental Protection and other governmental agencies with the development of policies and reservoir operation procedures that limit alteration of natural flow regimes to levels that maintain critical species, habitats, and ecological conditions.
- K. By September 30, 2015, together with partners, complete a new State Wildlife Action Plan.
- *Working with the Game Commission, NatureServe and Western Pennsylvania Conservancy, the Conservation Coordinator supported ongoing efforts to make the Conservation Opportunity Area Tool available through a portal in the Pennsylvania Conservation Explorer (PACE) website. This tool will offer information in 2015-2025 Pennsylvania Wildlife Action Plan in a web-enabled, user-interactive format for conservation planning and implementation guidance. The tool is scheduled to be available in early 2019.*
- L. Through June 2017, continue to conduct the following permit reviews: Species Impact; Scientific Collector; Threatened and Endangered Species; Nongame Special; Venomous Snake; Amphibian and Reptile Organized Hunt; Commercial Snapping Turtle; Water Obstruction and Encroachment; Triploid Grass Carp; Mining; Drawdown; Water Allocation; FERC Hydropower; 316(a) Clean Water Act Thermal Variance; 316(b) Clean Water Act Impingement and Entrainment; and select Algicide, Herbicide or Fish Control Chemical in Waters of the Commonwealth.
- *Species Impact/PNDI Reviews conducted: 499*
 - *Scientific Collector Permits/amendments reviewed and issued: 36*
 - *T&E Species Permits reviewed and issued: 5*
 - *Biological Opinions/T&E take permits issued: 2*
 - *Nongame Special Permits reviewed and issued: 2*
 - *Venomous Snake Permits reviewed and issued: season ended July 31, data entry completed for reports*
 - *Commercial Snapping Turtle Permits reviewed and issued: 12; data entry is ongoing*
 - *Organized Reptile and Amphibian Hunt Permits reviewed and issued: season ended on July 31, data from 6 organized hunt reports entered*

- M. By June 2017, sample at least 2,000 prioritized, un-inventoried streams that have been identified by Commission staff as most at risk from the effects of human activities and continue to forge partnerships to augment Commission sampling efforts.
- *During 2018, staff and partners surveyed 891 prioritized previously un-inventoried streams bringing the total number of streams surveyed from 2014 through 2018 to 4,570. Of the 891 streams surveyed during 2018 it is anticipated that approximately 349 will be added to PFBC's list of stream sections that support natural reproduction of trout; however, this number is preliminary and subject to change. Staff organized an Unassessed Waters Initiative meeting in December to allow cooperators that participated in the program during 2018 present results from their surveys and discuss ways to improve the Initiative moving forward. It should be noted that numbers reported here include what DES is reporting below.*
- N. Through June 2017, continue the development of a PFBC sampling protocol manual to ensure consistent data collection techniques for waterways.
1. By December 2014, complete documentation of PFBC-approved sampling protocols for large rivers.
 2. By December 2015, complete documentation of PFBC-approved sampling protocols for lakes.
 3. By December 2016, complete documentation of PFBC-approved sampling protocols for herptiles.
 - *Natural Diversity Section staff are active in the Northeast Partners in Amphibian and Reptile Conservation Hellbender and Mudpuppy Workgroup. A shared regional protocol for Mudpuppy surveys is in development and was reviewed. Staff are evaluating additional methods for surveying for Mudpuppies and worked on testing them in the quarter.*
- O. Through June 2017, annually address the following habitat improvement goals:
1. Refine the stream and lake prioritization approaches to guide habitat improvement work. Work with partners to avoid duplication of efforts and maximize cooperation to address common goals.
 - *Continuing to work with partners to utilize the Peach Bottom –Exelon RRA to improve habitat and reduce sedimentation in York and Lancaster Counties.*
 - *Contracts are executed on all four projects that were selected to utilize the Peach Bottom- Exelon RRA funds through the York and Lancaster Counties Habitat Improvement Grant Program. Three of the four projects have completed all deliverables. Work has been completed on Peters Creek, Fishing Creek and Harnish Run in Lancaster County. A contract extension has been initiated for the fourth project.*
 - *Continuing to work with the Pennsylvania Department of Agriculture to use the Peach Bottom- Exelon RRA funds as match towards a National Fish and Wildlife Foundation (NFWF) grant. Work will focus in the Fishing Creek watershed, Lancaster County. A cooperative agreement has been initiated.*

- *Continuing to partner with Northcentral Pennsylvania Conservancy (NCP), DEP and County Conservation districts to implement fish habitat enhancement and streambank stabilization projects to reduce the amount of sediment entering streams thereby improving water quality and remediating environmental degradation to local watersheds throughout the Northcentral region.*
- *Continuing to partner with Western Pennsylvania Conservancy (WPC) to implement fish habitat enhancement projects on PFBC's priority watersheds within WPC's focus areas.*
- *Continuing to partner with the USFWS through the implementation of a federal grant for habitat improvement projects statewide that benefit PFBC Species of Greatest Conservation Need, including amphibians, reptiles, and fin-fish. As part of this effort, a final report summarizing nine years of PFBC work was submitted, and a proposed continuation for three additional years of federal funding for such work was approved and initiated.*
- *Continuing to partner with Cambria County Conservation District to implement large scale habitat improvements on the West Branch of the Susquehanna River.*
- *Continuing to partner with County Conservation Districts, DCNR, USFWS, Trout Unlimited, and Western PA Conservancy on implementation of 10 active grant projects from the PFBC Sinnemahoning Creek Watershed Restoration Grant Program.*
- *Staff prepared a Request for Proposals and a Press Release for Round 5 of grant awards for the Sinnemahoning Creek Watershed Restoration Grant Program. The public invitation for submitting grant applications was announced at the end of June, and eight grant applications were submitted by external partners. The Internal Review Committee has recommended seven grant awards for funding to the Executive Director and Board of Commissioners totaling nearly \$550,000, which will be finalized for approval and publicly announced at the January 2019 Commission meeting.*
- *A PFBC Sinnemahoning Grant Project was completed by the Western PA Conservancy that used the North Atlantic Aquatic Connectivity Collaborative (NAACC) protocol to inventory and assess over 200 culverts and bridges at stream crossings within the Sinnemahoning Creek watershed for their ability to provide aquatic organism passage. These stream conveyance structures have been prioritized for removal and/or replacement to enhance fish passage and restore aquatic habitat connectivity – especially for wild trout.*
- *Two PFBC Sinnemahoning Grant Projects were completed that will improve public fishing and boating opportunities:*
 - *PFBC Division of Habitat Management – installation of fish habitat structures and shoreline stabilization at the George B. Stevenson Lake within Sinnemahoning State Park in Cameron County.*

- *McKean County Conservation District – installation at the Bradford City Water Authority’s Marilla Reservoir a fishing pier and a boating dock accessible to the disabled.*
2. Develop and implement lake habitat improvement plans into all PFBC high-hazard dam rehabilitation efforts.
 - *Kyle Lake: Lake Section is actively planning with onsite contractor. Trees removed from the downstream side of the dam breast are being moved into the lake basin where they will be anchored for fish habitat.*
 - *Minsi Lake: Clearance documents are filed to acquire RFHP grant funding from U.S. FWS. Large scale fish habitat project scheduled to begin in 2019.*
 - *Lake Somerset: The Reservoir Fisheries Habitat Partnership has selected Lake Somerset to receive \$30,000 of RFHP grant funding for the proposed habitat project.*
 - *Tamarack Lake: Staff are working with the Crawford County Conservation District to plan a native aquatic vegetation planting in the lake basin as soon as the lake is refilled.*
 - *Donegal Lake: Staff are looking for local habitat partners to join the Cooperative Habitat Improvement Program. Currently no local groups have applied to become a habitat partner.*
 - *Colyer Lake: A limestone burrito structure is being installed at water source to improve alkalinity of incoming water to Colyer Lake.*
 3. Develop a plan to prioritize dam removals and culvert passage objectives statewide and facilitate fish passage through the removal of 25 dams, improved culvert installations, or the installation of fishways.
 - *Staff continue to engage project partners, including Federal, state and local agencies and nonprofit organizations, to effectively and efficiently improve aquatic organism passage through the removal of dams, installation of fishways and improving passage at road stream crossings and other impediments.*
 - *Staff continue to participate in a program focused on statewide dam removal efforts. Seven obsolete or non-functional dams were removed in PA in 2018 and staff continue to work with a broad partner group and provide technical assistance and coordination to advance dozens of ongoing dam removal and fish passage projects across the state.*
- P. By January 2016, simplify fishing regulations.

Recreation

Issue 3: Other leisure and recreational activities are competing with fishing and boating for people’s time.

A large body of research exists that suggests strategies likely to engage and retain people to fish and boat by promoting it as fun, relaxing, convenient, easy, and safe. One of the most practical strategies for creating new anglers is simply for a friend or family member to take them

fishing. Maintaining the most efficient use of stocked fish also continues to be a core element of providing recreational fishing opportunities.

At the same time, the Commission needs to learn more about and use customer demographics, needs, and desires to increase participation in fishing and boating. The Commission should continue to rely on national research and best practices as a foundation for its recruitment and retention goals and focus its efforts on enhancing and using basic knowledge of its customers.

Strategy 3A: Successfully involve youth and other target audiences in fishing and boating by addressing the following five key elements in outreach programs, with an emphasis on social support:

- **Providing introductory experiences**
- **Providing access to equipment**
- **Providing instruction (skills)**
- **Providing access (real and perceived)**
- **Encouraging social support (apprenticeship/mentoring ensures adoption)**

Goal 3A: Engage in targeted education and outreach activities that address the five key elements of fishing and boating participation and engage partners to enhance the Commission’s efforts through the multiplier effect at the local level.

- A. Through June 2017, develop and implement annual plans for delivering training and instructional resources to sportsmen’s clubs, conservation organizations, and outdoor recreation providers for Family Fishing, SMART Angler, women’s, and other effective programs at the local level.
 - *The Gaun First Catch center wrapped up a fall blitz of programming in and around the 5-county Philadelphia metro area that took place between August 25th and November 3rd. Gaun staff with support of outreach staff outside the SE Region delivered 14 fish-specific meet-ups, 2 motorboat meet-ups, 1 kayak fishing meet-up, 3 Family Fishing Programs, 1 Women’s Intro to Fly fishing Program and provided a Gaun display or introductory fishing activity at 6 special events.*
- B. Through June 2017, maintain Fishing Tackle Loaner Program to make equipment accessible for group or individual loan.
 - *Obtained year-end report from 60 of the 83 active Fishing Tackle Loaner Program sites.*
 - *Nearly 1,000 loans were made in 2018*
 - *Loaner equipment was used to reach nearly 2,400 participants in angler education programs*
- C. Through June 2017, develop and implement annual plans to present fishing opportunities in appealing and convenient “packages” such as PA’s Best Fishing Waters, Family Fishing Festivals, and mentored youth opportunities.
- D. Through June 2017, develop and implement annual plans for mentoring programs, with focused opportunities (e.g., different species or seasons) and increased outside partnership engagement.

1. Increase lead-in and follow-up contacts for mentored fishing opportunities (such as promotions, partnerships, surveys, newsletters).
 2. Incorporate recruitment and retention elements into mentoring program promotions and partnerships.
 3. By July 2016, assess the overall effectiveness of the Mentored Youth Fishing Day program. *As of December 15, 2018, 20,510 mentored youth permits and 8,154 voluntary youth fishing licenses were issued.*
- E. Through June 2017, use increased understanding of customer demographics, current research, and customer trends to enhance recruitment and retention of anglers and boaters by identifying targeted segments for outreach and education.
- *Presented results of Southwick R3 analysis at RBFF marketing workshop in December, and at NEAFWA R3 workshop in November.*

Strategy 3B: Provide for safe and enjoyable participation in boating.

Goal 3B: Conduct outreach and informational efforts designed to reduce boating-related casualties, maintain water rescue program to provide necessary training for emergency response personnel to safely and effectively respond to water-related emergencies, and pursue new public access as resources allow.

- A. Through June 2017, annually identify and implement specific strategies to reduce casualties of targeted user groups.
- B. By January 2015, use point-of-sale messaging to increase awareness of minimum boating safety legal requirements.
- C. Through June 2017, continue to play a leadership role in the Pennsylvania Helicopter Aquatic Rescue Team (PA-HART) program.
- D. By July 2015, establish BLE swiftwater strike team as a certified Type 1 response team.
- E. Through June 2017, annually conduct Operation Dry Water, a statewide boating safety and boating under the influence saturation detail.
- F. Through June 2017, administer the Floating Structure and Aids to Navigation program.
- G. Through June 2017, administer Lake Erie Access Program and, as resources allow, pursue other public access opportunities consistent and Pennsylvania's Fishing and Boating Access Strategy.

Strategy 3C: Create put-and-take fisheries by stocking legal size fish and enhance fisheries by stocking fry and fingerling size fish which supplement natural populations to support sustainable fisheries.

Goal 3C: Ensure that fish production levels are met annually to optimize fishing opportunities.

- A. Through at least July 2015, continue to operate all 13 state fish hatcheries.
 1. Trout Culture: Annually produce and stock up to 3.2 million adult trout or 1.9 million pounds to stock in the Commonwealth. Trout are being stocked according to plan for preseason stockings. *From October 1, through December 31, 2018 PFBC hatcheries produced and stocked about 102,400 adult trout and 221,454*

fingerling trout. PFBC Cooperative Nurseries received about 79,570 fingerling trout from PFBC hatcheries during the reporting period.

- a. By July 2015, evaluate the public demand and expectations for stocked trout and provide a recommendation on how many trout should be raised.
 2. Warm/Cool Water Culture: Annually produce warm/cool water species through in-house production or acquisition to meet requests to stock species requested by Fisheries Management.
 - *This is the Steelhead spawning season and staff are collecting fish at Trout Run and spawning them at Fairview SFH. There has been a lot of social media on the program and fishing has been good. From October 1, to December 10, 2018, the Commission produced and/or stocked 13,547 fingerling Black Crappie, 34,800 fingerling Bluegill, 1,637 fingerling Chain Pickerel, 69,395 fingerling Channel Catfish, 12,934 yearling Channel Catfish, 4,830 advanced fingerling Largemouth Bass, 9,201 fingerling Striped Bass hybrid, 850 fingerling tiger Muskellunge and 8,323 fingerling Yellow Perch*
 3. Cooperative Nurseries: Annually produce fish and eggs to supply the needs of the cooperative nurseries throughout the Commonwealth.
- B. Through December 2017, ensure the safe and efficient maintenance and operation of state fish hatcheries while remaining in compliance with environmental regulations and fish health guidelines.
1. Annually utilize available funding for maintenance and operation of hatcheries and identify budget shortfalls which may lead to fish production decreases.
 - *Another section of raceways covered in bird netting at the Bellefonte State Fish Hatchery. Installation of raceway oxygen monitoring and alarm system 90% complete at Pleasant Gap State Fish Hatchery. New culvert bridge over hatchery aquaduct carrying rearing water installed at the Huntsdale State Fish Hatchery.*
 2. Consistently maintain and update hatchery permits and perform water quality analysis according to permits. Several permit renewal applications have been sent to DEP
 - *All 14 State Fish Hatchery permits are current or are waiting on a response from PA DEP. During the quarter, no permit renewal applications were submitted. All water quality analyses have been performed according to the requirements of each permit.*
 3. Annually perform fish health inspections, provide diagnostic services, and maintain fish transfer records.
- C. Through July 2017, maintain and promote existing cooperative nurseries.
1. Through July 2017, increase the presence of cooperative nursery information in the *Pennsylvania Angler and Boater* magazine and the PFBC website. *Articles for "Currents" section of magazine have been provided on a regular basis*
 2. By December 2016, perform an analysis of existing cooperative nurseries and recommended production levels. *Analysis of existing cooperative nurseries and recommended production levels is currently on-going.*

3. By July 2016, evaluate and recommend improvements to the cooperative nursery application process. *Analysis of existing cooperative nurseries and recommended production levels is currently on-going.*

Internal Resources

Issue 4: The Commission must consistently make investments in itself to maintain its infrastructure, staff, and programs and their respective relevance.

The Commission's employees are its largest investment and most important resource. More than just people, the Commission's infrastructure includes a vast network of facilities and properties. To deliver its programs and services, the Commission needs to sustain strategic investments in employee development and training, information technology, and physical infrastructure and properties, which include an enormous backlog of capital improvement requirements and an extensive list of long-term maintenance needs that require a coordinated and deliberate approach for planning, funding, and implementation.

Strategy 4: Strengthen performance and secure operations by continuing to efficiently and effectively manage limited financial and human resources and agency infrastructure.

Goal 4: Optimize agency efficiency through continuation of investments in information technology, employee training and development, and infrastructure planning and implementation.

A. Information Technology

1. By June 2016, redesign the Commission's website to simplify and enhance ease of navigation.
2. By June 2017, continue to plan for and support IT updates, enhancements, and maintenance of critical business applications to meet the needs and requirements of program areas.
 - a. By September 2014, identify and prioritize essential application enhancements for key business areas.
 - b. By July 2015, develop and implement annual plans for prioritized and funded application enhancements.
3. Through June 2017, continue to convert business applications to the new .NET/SQL application standard platform as necessary.
4. By July 2015, identify and begin utilizing available partnerships, infrastructure, software, data, and training to provide meaningful and useful information for managers and executive leadership to make critical programmatic, marketing, and business decisions.
5. By June 2017, develop the capability of a GIS layer containing Commission properties.
 - a. By June 2016, validate existing data, through general referencing, on Commission property holdings.
 - b. By June 2017, develop GIS layer for Commission properties.

B. Training and Development

1. Through June 2017, continue to re-invest in employee development opportunities.
 - *Brian Niewinski, Chief of Fish Production Services, graduated from the PA Leadership Development Institute program. Two Bureau of Hatcheries staff attended the USFWS Mussel Culture course in preparation of implementing the mussel culture program at Union City State Fish Hatchery.*
 2. By June 2016, complete the training of a new class of WCOs.
- C. Through June 2017, continue to implement a comprehensive multi-year Infrastructure Plan for the engineering, maintenance, and development of the Commission's dams, access areas, administrative buildings, hatcheries, marinas, and bridges.
1. Through June 2017, leverage funding sources to complete high-hazard dam repairs.
 - *Belmont Lake Dam, Wayne County – Design of dam safety improvements are approximately 60% complete.*
 - *Lower Woods Dam, Wayne County – Project Design is 99% complete and is under review by the regulatory agencies.*
 - *White Oak Pond Dam & Miller Pond Dam, Wayne County – Design of dam safety improvements at both facilities are approximately 40% complete.*
 - *Tamarack A&B Dams, Crawford County – Construction of the Tamarack Lake Rehabilitation project is approximately 95% complete.*
 - *Children's Lake, Cumberland County – Design of dam safety improvements are approximately 5% complete.*
 - *Kyle Lake, Jefferson County – Construction of the Kyle Lake Dam Project is approximately 25% complete.*
 - *Donegal Lake Dam, Westmoreland County – Construction of the Donegal Lake Dam Project is approximately 25% complete.*
 - *Minsi Lake Dam, Northampton County – Bids Dam Rehabilitation project has moved into the construction phase and will commence in December of 2018.*
 - *West Pittston Armory Rehabilitation Project, Luzerne County – Consulting Engineer has been selected by the Department of General Services. Consulting firm and DGS will not begin design fee negotiation process.*
 2. By March 2015, prioritize access areas that the Commission manages on behalf of the Commonwealth and begin implementing repairs on an established cycle.
 3. By December 2014, complete plan for where and how to house the Commission's Centre County-based staff.
 4. By June 2016, complete plans to optimize Commission field staff into as few locations as possible to meet identified business needs.
 5. By December 2014, complete return on investment analysis of marinas managed by the Commission.
 6. By January 2015, prioritize bridges that the Commission manages on behalf of the Commonwealth and begin implementing repairs on an established cycle.
 7. By June 2017, complete a Commission-wide energy savings analysis.
 - a. By December 2015, complete an energy savings analysis for state fish hatcheries.

Other significant activities or progress:

- *Under a Competitive State Wildlife Grant for Conservation and Management of the Spotted Turtle in the Eastern US, DES NDS staff worked on planning for trapping to occur in 2019. Several sites were visited to determine their suitability for study in the spring.*
- *DES NDS staff collected water samples from Dunkard Creek and its tributaries that will be analyzed for the presence of Mudpuppy eDNA, in order to continue the assessment of the status of Mudpuppy recovery in Dunkard Creek.*
- *During this quarter the NGS drafted a report which will be shared with the State Attorney General's office as part of an ongoing investigation into the release of "treated produced water" from an above ground storage tank at the TLC Well Pad Site into two unnamed tributaries to Loyalsock Creek in Lycoming County. The report detailed water quality monitoring efforts undertaken from November of 2017 to February of 2018 to evaluate the impact of the pollution event.*
- *In December, the NGS collected fish from Truman Run in Lycoming County after a truck accident resulted in the release of approximately 4,000 gallons of produced water recovered from an unconventional natural gas well. The fish will be transferred to Dr. Dave Keller of Drexel University's Academy of Natural Science who is developing analytical techniques using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) to detect surface water contamination by produced water from the Marcellus Shale formation. The focal elements he is identifying from the otolith microchemistry are strontium and barium of which both have isotopes which can be linked to fluids recovered exclusively from the Marcellus Formation*
- *DES WAS and DHM staff have co-partnered with PA Trout Unlimited to conduct aquatic organism passage assessments on a subset of PA stream crossings. Staff have assessed 23 sites in seven counties using the North Atlantic Aquatic Connectivity Collaborative (NAACC) Protocol. This collaborative effort is the first multi-organizational partnership in Pennsylvania to evaluate the protocol and develop meaningful results for future stream crossing designs.*
- *A total of 678 adult Brown Trout were stocked throughout the Lake Erie tributaries over the weeks of November 19th -December 10th. These fish were brood (see figure) from the Linesville Lake Erie Brown Trout program. Fisheries Biologists from the Area 1 office helped with determining stocking locations and helped with the stocking effort. Staff from Tionesta, Union City, Corry, Fairview and NW Bureau of Law Enforcement also helped with the stocking effort. Staff received a tremendous number of compliments from the anglers and many positive comments were made on local social media accounts.*
- *During the 4th quarter of 2018, the Cooperative Nursery Unit filled the previously vacant, full time Fisheries Technician position. The Water Quality Unit maintained its' annual DEP accreditation which allows staff to perform water quality analyses for our hatcheries.*

- *Trout production is going well at the hatcheries and as a reminder to anglers, all the hatcheries are open and will be stocking approximately the same numbers of large adult trout as we have the last 10 years, including thousands of trophy size trout and golden rainbows.*
- *Staff attended 19 shows or other events, resulting in direct contact with nearly 2,600 people. This includes:*
 - *3 Pittsburgh University home football games*
 - *8 Penn State University Athletics home games (football, men's hockey, men's basketball)*
- *Staff taught 22 women anglers during two new Women's Intro to Steelhead Fishing Programs in October 2018. Attendees learned the basics of fly and spin fishing first, and then spent the afternoon trying to catch Steelhead.*
- *Finalized plans for PFBC presence at 14 sports, boat, outdoor shows, and related events.*
- *Finalized plans for PFBC presence at 22 winter sports events at Pitt (6) and PSU (16)*
- *Social Media*
 - *Facebook: 840 new followers, brings total number of page followers to 70,389; and resulted in more than 1,405,536 impressions for the quarter.*
 - *Twitter: 507 new followers, brings total number of followers to 9,838; and resulted in 509,369 impressions for the quarter.*
 - *Instagram: 987 new followers to date, bringing the total number of followers to 5,629; and resulted in 154,282 impressions for the quarter.*