

# Pennsylvania Fish & Boat Commission Report

John A. Arway, Executive Director

www.fishandboat.com



## Don't Flush It!

On February 7, I was happy to participate in a hearing conducted by the Senate Environmental Resources and Energy Committee on the impact of pharmaceuticals on Pennsylvania waterways. We were delighted to receive the invitation from Committee Chair Senator Gene Yaw to offer the perspective of the Pennsylvania Fish and Boat Commission on this timely topic and to, as I like to say, “speak for the fish.”

Pharmaceuticals are synthetic or natural chemicals that can be found in prescription medicines, over-the-counter therapeutic drugs and veterinary drugs. It is indisputable that advances in medications have improved human, herd and cultured fish health. Effects of properly used and prescribed medications on the target humans and animals are largely known given the research associated with their development.

Interactions of a number of pharmaceuticals are less certain. Over prescription or overuse of medications can increase release of these compounds to the environment. These substances pass through humans, animals, and the waste stream and travel by various routes toward our rivers, creating a murky picture.

In Pennsylvania's waterways, fish and aquatic life are exposed to a very complex mixture of pharmaceuticals and other compounds that have been released in waste streams and runoff. This mixture contains both pharmaceuticals that pass through the user's system along with

their break down products, which can have their own health effects. Concentrations can vary widely over time.

Research first begun about 1999 has shown that chemicals found in medications are being absorbed by fish and are contributing factors to a number of problems. Perhaps the most troubling condition is intersex fish, where male fish develop female egg cells. In general, the closer fish have been sampled to wastewater effluents, the higher the percentage of intersex fish.

A class of chemicals that produce hormonal changes in fish are called endocrine disrupting compounds or EDCs. One effect these chemicals produce is called estrogenicity since and estrogen-like effect is produced. The United States Geological Survey (USGS) Fish Health Laboratory reported in 2013 that about 50% of male bass in the Delaware River had intersex condition, and 10% in the Ohio River drainage were affected. Up to 100% of the males sampled in the Susquehanna River were intersex. More recent samples in the Susquehanna confirm that 90 – 100% of male Smallmouth Bass have intersex condition and that this condition is more severe than found in other drainages.

Much additional work is needed to identify the products or mixtures of chemicals that produce estrogenic effects. In the 2015 the multi-agency CADDIS (Causal Analysis/Diagnosis Decision Information System) study, endocrine disrupting compounds, which include those with estrogen-like response, and pesticides were



Mark Nale Photo

listed as likely causes for reduction of the Smallmouth Bass population in the Susquehanna River.

How can pharmaceuticals reach Pennsylvania waterways? One route is through point source discharges from wastewater treatment plants. Processing wastewater typically involves an activated sludge treatment process. The standard treatment process varies in the removal rate for pharmaceuticals from less than 20% to greater than 90%. Standard wastewater treatment processes were not designed to remove residual prescription drugs and other emerging contaminants.

Pharmaceuticals can also enter waterways through runoff from animal feeding operations. Application of pesticides, herbicides, manure, fungicides and fertilizers can migrate from fields and lawns where they are applied to our streams and lakes where they can interfere with biological processes in fish and aquatic life. In urbanized areas, pollutants, including pharmaceuticals, and can enter waterways through stormwater sewer systems.

Geisinger Health Systems has championed removal of prescription drugs from unintended use and from the environment through a medication take-back box program. These medications are gathered from take-back boxes



in secure locations by the Pennsylvania National Guard and incinerated. The National Guard told us that in 2016, about 500 take-back boxes contributed to 66,000 pounds of unused pharmaceuticals being removed from homes across Pennsylvania. That's over 30 tons!

Our agency was so impressed with this program that we partnered with Geisinger to install a take-back box in our Harrisburg office to provide a way for citizens to safely dispose of unused medications and to help improve the health of the Susquehanna River and



*PFBC Executive Director John Arway met Scott A. Grahn, PFBC Water Rescue Instructor Trainer during an ice rescue training session at Bald Eagle State Park, Centre County in February 2017. Arway was ice fishing and Grahn was training the Howard VFD in ice rescue. Fortunately Director Arway did not require the services of the rescue.*



## Life Jackets Save Lives Follow Safety Tips in Cold Weather

When sunny days tempt the boater in you, don't forget about your life jacket, especially if you are planning to use a canoe, kayak or similar small boat. Beginning Nov. 1 and lasting through April 30, individuals are required to wear a life jacket while underway or at anchor

on boats less than 16 feet in length or on any canoe or kayak. The requirement applies to all PA waters.

**To learn more about life jackets and cold water survival, visit**  
<http://fishandboat.com/safety.htm> and [www.wearitpennsylvania.com](http://www.wearitpennsylvania.com).

its Smallmouth Bass. Elimination of unused pharmaceuticals from homes prevents improper disposal down the toilet and, ultimately, into the river.

We continue to strongly recommend to the Pennsylvania Department of Environmental Protection (DEP) and the United States Environmental Protection Agency (EPA) that the Susquehanna River in particular needs implementation of time-driven goals to define the precise nature of water quality problems and institute remedies through an impairment designation. We believe such a designation would attract resources and funding that will not only help clean up the river, but will assist with Pennsylvania's efforts in meeting Chesapeake Bay loading limits and goals. We are now jointly identifying Susquehanna River basin priorities with EPA and DEP to focus our efforts to reduce pharmaceuticals, nutrients, sediment and other

contaminants in this watershed.

The installation of the medication take-back box is a natural fit for our Save Our Susquehanna (S.O.S.) Program that is focused on protecting the river one farm, one household, and, dare I say, one toilet at a time. The next time you plan a trip to our Harrisburg, please consider cleaning out your medicine cabinet and bringing any unused medications with you for disposal. The fish will thank you.

**PFBC**

