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Upcoming Events:

PCWEA sponsored Creek Crawl on July 16. Biologist Kevin Kelly is going to help us walk a portion of Paxton Creek looking for Rusty crayfish.

(See Crayfish Crawl on page 3)



PCWEA is now on Facebook

Paxton Creek Watershed & Education Association Newsletter

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INVASION OF THE BODY SNATCHERS? by Rhonda Hakundy-Jones

No, something potentially worse. It is the invasion of Pennsylvania waters by the Rusty Crayfish (*Orconectes rusticus*). The rusty, as it is often called, is not native to Pennsylvania waterways. It is believed that the species was introduced to Pennsylvania by fishermen using the crayfish as bait. Rusties grow to be relatively large, are more aggressive than native crayfish, and are voracious eaters.

Rusty crayfish have high metabolic rates. In order to sustain their metabolisms, they consume twice as much food as similar sized native crayfish. Additionally, they are opportunistic feeders, meaning that they will eat nearly anything. Often, they feed on aquatic plants, destroying the vegetation around them. Pennsylvania Sea Grant reports that "rusty crayfish devour so much underwater vegetation that food, shelter, and spawning sites for other organisms are dramatically reduced."

Once rusty crayfish are introduced to a water body, they force native crayfish from their hiding places, making the natives vulnerable to predators. Although native crayfish are consumed by many species of fish, rusties grow so quickly, that only very young rusties can be eaten by fish. Furthermore, unlike native crayfish, when attacked, rusties take defensive postures with claws up. In short, due to the rusties' large size and aggressive behavior,
Continued on page 2...



Photo source: USGS

...It is believed...(the "rusty") was introduced to Pennsylvania by fishermen using the crayfish as bait...



Photo source: wikipedia

Invasion of Body Snatchers...continued from page 1

they have few predators, but make native crayfish more vulnerable to predators.

Have rusty crayfish impacted the Susquehanna River or Paxton Creek?

Pennsylvania Department of Environmental Protection (PADEP) aquatic biologist, Kevin R. Kelly reported to PCWEA that he has sampled crayfish at various places in the Susquehanna River including Harrisburg, Dauphin, and Halifax and has identified rusty crayfish at an estimated frequency as dense as 10 crayfish per square foot, in places. He is particularly concerned that "typically, once Rusty crayfish arrive, the native crayfish species are eliminated." Regarding Paxton Creek, Kelly has sampled in the vicinity of the HACC campus. He stated that the density of Rusty crayfish was low due to heavy sediment on the stream bottom, but that he "found no native crayfish in Paxton Creek downstream of Wildwood".

The good news is that because of the rusties' large size, they are suitable for human consumption, which may be the best way to control this invasive species.



Photo source: wikipedia

To reduce the spread of Rusty crayfish Pennsylvania has banned the sale and use of Rusty crayfish as bait and many studies are taking place to better understand rusties and how to manage them.

References:

<http://seagrant.psu.edu/publications/fs/RustyCrayfish.pdf>

<http://www.invasivespeciesinfo.gov/aquatics/Rustycray.shtml>

E-mail from Kevin R. Kelly, PADEP to Rhonda Hakundy-Jones, PCWEA, dated 3-7-11.



Photo source: Manitoba Water Stewardship

Related Event:

PCWEA sponsored Creek Crawl on July 16. Biologist Kevin Kelly is going to help us walk a portion of Paxton Creek looking for Rusty crayfish. See Page 3 for details.

Photos:

http://en.wikipedia.org/wiki/Invasion_of_the_Body_Snatchers

http://www.gov.mb.ca/waterstewardship/stopais/rusty_crayfish.html

http://en.wikipedia.org/wiki/Rusty_crayfish

Crayfish Crawl Coming on July 16

When is a walk along Paxton Creek something else? When it is a crayfish crawl! This is the name for a Paxton Creek Watershed and Education Association (PCWEA) combination picnic, social gathering, recreation, and creek adventure (collecting crayfish, and participating in research). On Saturday morning, July 16 Association members, their families, and guests will gather at Shutt Mill Park in Susquehanna Township at 9 am for the morning activities: Kevin Kelly, member and DEP biologist, will brief the group on crayfish background and collecting aspects; persons who want to participate in the Crawl will then separate into four groups: three for collecting the crayfish from Paxton Creek at locations downstream and upstream of Wildwood Park, and the other group for water frolic and making picnic preparations. After an hour of activities at the sites, all persons will gather again at Shutt Mill Park (by 11 o'clock). About an hour will then be spent discussing findings while recording data, and preparing crayfish for further study (and for picnic fare). The picnic will begin by noon. The event should be over by 1 pm. The rain date is the next afternoon, July 17, 1-4pm at the same location, and the agenda would likely be reversed (dine first, and then stalk the crayfish).

Stalking the Crayfish – Rusty and Others?

The crayfish will be collected for two purposes: subsequent tests on crayfish tissues (a bioassay), to assess their uptake of metal pollutants); population information as an initial check of the hypothesis that Wildwood Lake is serving as an upstream barrier (deep aquatic sediments) to the migration of the Rusty Crayfish (or *Orconectes rusticus*) into upper Paxton Creek watershed. This species, an invasive variety, has largely displaced native crayfish in the lower Susquehanna River, and may be a major factor in the demise of the former world-class Smallmouth Bass fishery in the Harrisburg area in the last decade. Afterwards, the remaining live native crayfish will be returned to the creek. PCWEA has wader boots, gloves, etc. for people who need them. Kevin and the DEP will provide the simple sampling gear. Participants should bring their PA fishing licenses if they have them!

Extraordinary Picnic

The picnic fare will consist of dishes brought by PCWEA, the members, their families, and guests, plus boiled crayfish! (A few members will pre-collect and pre-process “Rusties” in the river during days prior to the event.) PCWEA will supply the drinks, cups, plates, napkins, utensils, deli meats, and baked beans. Persons who would like to sit in chairs should bring their own; seats will be limited. **An email RSVP to info@paxtoncreek.org or 717-889-1408 is requested for planning, logistics, and procurement purposes.**

www.paxtoncreek.org will have directions to Shutt Mill Park (). The summer newsletter will also contain an article and pictures by Rhonda Hakundy-Jones discussing the characteristics and background of the Rusty Crayfish (see page 1).

Wildwood Lake Improvement Project

by Matt Bonanno

Project Goal:

To modify an existing outlet structure to aid in controlling the amount of water being discharged toward the City of Harrisburg during frequent storm events. This will help reduce the potential of flooding.

Background:

The primary purpose of the Wildwood Lake Improvement Project is to modify the existing "Morning Glory" outlet structure located on Wildwood Lake in Dauphin County. The "Morning Glory" is one of two outlet structures on Wildwood Lake. Built in 1908, the "Morning Glory" is located at the southern end of Wildwood Lake just north of Wildwood Way. Water that enters this structure discharges under Interstate-81 into Paxton Creek flowing south into the City of Harrisburg. The second outlet structure known as the "Susquehanna Spillway" is located at the northern most portion of Wildwood Lake, just south of Linglestown Road (S.R. 0039). Flow that enters this spillway is conveyed directly to the Susquehanna River. Historically, the "Morning Glory" outlet structure was designed to raise or lower the normal water surface elevation of Wildwood Lake via adjustable height boards contained within slats in the structure; however those boards have not been utilized in decades.

Existing Configuration:

As the lake surface rises, water enters into the "Morning Glory" outlet structure where it flows into a cylindrical hole and drops approximately 10 feet, where the water then enters a 4-foot high by 5-foot wide box culvert that conveys the water under Wildwood Way and into the "Morning Glory" discharge, which is a riser pipe and a splash apron. The water then flows overland until it reaches an 8.5-foot circular concrete pipe that conveys the water under Interstate-81.

Proposed Configuration:

Although the outer rim of the cylinder structure will remain the same, the primary outlet structure will be modified by adding an approximate 18-foot diameter, 1-foot thick concrete insert around the opening (hole) in the base of the structure. Although concrete, the insert will appear to be constructed of stone masonry by the use of architectural liners. The top of the concrete insert will be approximately 6-feet higher than the normal lake elevation. Base (low) flow will enter the outlet structure via a 1-foot by 1-foot square orifice at the bottom of the insert before entering into the existing box culvert. Debris racks will also be installed on the square orifice and on top of the insert to prevent large debris from clogging the structure. By restricting the amount of water that is able to flow into the "Morning Glory", additional flow will be forced to outlet the lake via the "Susquehanna Spillway" and away from the portion of Paxton Creek that flows through the City of Harrisburg.

Construction Schedule:

Construction of the project began in the Winter of 2010 and was to be completed by December 31, 2010 due to funding requirements. However the funding was successfully extended and the concrete insert work is scheduled to be completed by the end of April 2011. Following the completion of the insert, the architectural forms will be painted to finalize the desired stone masonry appearance. Kinsley Construction, headquartered in York, Pennsylvania was the selected contractor in charge of completing the work.

***A special thanks to Gerry Longenecker at Skelly and Loy, Inc., the design consultant who provided information for this article.**

Matthew S. Bonanno, P.E. is a member of the PCWEA board.

Matthew S. Bonanno also provided photos



Morning Glory under construction



inside Morning Glory



Susquehanna spillway northern Wildwood Lake

'Invisible'? Paxton Creek Problems: Perspectives & Issue Distortions

Part Two of a Three-Part Series



By E. Drannon Buskirk, Jr.

Background: This is part two of a three-part series, which began in the last (spring) 2011 *PCWEA Newsletter*. Part I introduced the latest aspects of the ongoing saga of Paxton Creek watershed's continued demise, local stormwater anguish, developers actions, and responsibility declines by various governments. The story: Decades of studies and watershed monitoring found various parts of Paxton Creek tributaries to be impaired – in fact, about 17 of the creek's 53 linear miles were so designated and posted in a document called a 303D list kept in every state. In the creek's 17 linear miles are dozens of environmental areas, and 28 combined sewers. Severe impairment that can threaten Harrisburg's health during moderate to heavy storms. The United States Environmental Protection Agency (USEPA) uses the 303D lists to identify polluted water bodies in need of rehabilitative actions.

Over 2 years ago the USEPA issued a TMDL - Total Maximum Daily Load (of certain pollutants) in watershed drainage mainly transported by Paxton Creek flows, and directed the 6 watershed municipalities to decrease sediment and phosphorus (most of which is caused by the practices of people) by certain amounts. Almost immediately after the TMDL was issued the municipalities, builders, and others brought a lawsuit against the USEPA, so as to avoid TMDL requirements, and to continue their ways of doing things. This past winter (1/29/2011) the *Patriot-News* reported on a claim by PA builders that actions by them & municipalities led to removal of Paxton Creek from a list (presumably the 303D list) held by the PA Department of Environmental Protection (DEP), which relieved them of the need to change practices or cleanup and pollution prevention responsibilities. Said a builders' associate firm (consulting engineers R. J. Fisher & Associates, Inc. on 1-9-2011) in a comment/statement: "The Paxton Creek TMDL is no longer!" ... and suggested the TMDL was among the "regulations that threaten the American Dream of Home Ownership." If true, removal of Paxton Creek from the 303D list (contrary to massive, long standing evidence of impairment) is an elegant way to reduce conflict, get a lawsuit dropped, stop and/or reduce legal expenses, avoid responsibilities by parties. In essence, a win-win for governments and developers. Hardly suitable for Nature (habitat and wildlife losses), eroded landscapes, sedimented water bodies, dried up wells, floods, and associated miseries for people that live downstream from developments made by conventional means. Essentially all people and creatures are downstream -- affected by both direct and indirect actions upstream. The first part of the series with tongue in cheek asked the question, does the removal of Paxton Creek from the list essentially make the creek's problems "invisible?" Of course not. Even the foul odors of combined sewers remain, although perhaps stronger, if bolstered by a whiff of governmental corruption, or political maneuvers.

A Broader Perspective and Issues Distortion:

PCWEA supports TMDLs because they have quantitative pollution targets, are aimed to achieve designated water body uses (e.g. recreation, water supply), and stimulate communities to get on with watershed improvement tasks. Stormwater quality cannot be successfully ignored for another half century. In a letter to the USEPA, the PCWEA was critical of the TMDL for Paxton Creek: The data used, the heavy-handed way it was presented to municipalities, along with other concerns. However, the Association did not try to stop the process through lawsuits, politics, monetary reductions, or legislative actions. The latter are major efforts underway at this time. The PADEP is likely to have a 30% or more reduced \$ budget next year; the USEPA has similar financial pressures. Led by Congressman Bob Goodlatte (VA) a federal budget amendment was proposed with strong support stating that: "None of the funds made available by the Act may be used to develop, promulgate, evaluate, implement, provide oversight to, or backstop total maximum daily loads or watershed implementation plans for the Chesapeake Bay Watershed." Paxton Creek is part of the main source of freshwaters (over 50 % is from the Susquehanna River) flowing into the Chesapeake Bay, and for its size the creek also is one of the largest polluters of sediment and phosphorus that discharge to the Bay. It is a gross distortion, in essence ignorance or a lie, to say TMDLs threaten the American Dream of Home Ownership, or to consider PCWEA as anti-development (early in PCWEA's history builders said they thought we would bring more environmental regulations upon them). Nonsense. Different modes of development can achieve satisfactory runoff infiltration with less impervious surface (a key to watershed rehabilitation). Ignoring the impacts upon the creek for whatever reasons can be disastrous, and will likely lead to worse, more costly situations in the future. In the next Newsletter strategies and relatively inexpensive, effective best management practices for stormwater management, and watershed rehabilitation that would help implement TMDLs will be discussed.

PCWEA Board of Directors Election

Thank you to all who completed their ballots for PCWEA Board of Directors. The election committee recently counted the ballots over a cup of tea at St. Thomas Roasters and we are announcing that your votes went to: Charles (Chuck) Brunner, Bryan Genesse, and Rob Davis. Chuck Brunner will serve a two year term while Genesse and Davis will each be serving one year terms. Congratulations to our three Board of Directors. We look for you to assist PCWEA with wisdom and zeal.

Special Thanks:

PCWEA gratefully thanks Rhonda Hakundy-Jones, Gary Smith, Matt Bonanno, and Drannon Buskirk for their dedicated efforts in preparing, monitoring, and dismantling displays at the Wildwood Wetlands festival held back in April. Brian Genesse for the presentation stand at the Doug Tallamy presentation held in May at Lower Dauphin H.S. Drannon Buskirk for his presentation on rain barrels at the Hershey Library in May. Arlene Taylor, Rob Davis, Brian Genesse at the clean out at the Grow Out Center at Shutt Mill park in Susquehanna Township in June. Arlene Taylor, Brian Genesse and several HACC students contributed greatly to litter pick up and garden maintenance at HACC's Harrisburg Campus. If we have overlooked mentioning anyone else's efforts, please let us know and accept our apologies for missing a "thank you". All PCWEA volunteers are appreciated and considered the life blood of this organization.

Good actions give strength to ourselves and inspire good actions in others. Plato

About the

Paxton Creek Watershed & Education Association (PCWEA)

The Paxton Creek Watershed & Education Association (PCWEA) was founded in 2001 with a three-part mission: to protect and enhance watershed resources, solve watershed problems, and facilitate hands-on environmental education.

The Paxton Creek watershed covers 27-square miles northeast of the City of Harrisburg, in Central Pennsylvania. Upstream portions of the watershed historically consisted of woodlands and farmland. While downstream portions of the watershed are situated within the City of Harrisburg where Paxton Creek flows through industrial and commercial properties. In places, downstream, the creek is channelized and receives heavy sediment loads eroded from rapidly developing areas upstream.

Development in the upland areas of the watershed has led to the construction of impervious surfaces in the form of roads, parking lots, commercial, and residential buildings. These impervious surfaces severally limit infiltration of surface water into the ground and perpetuate storm water runoff problems. Paxton Creek Watershed generates 15 times the amount of suspended sediments released by typical forested watersheds.

PCWEA Lifetime Members: Frank & Judy Beskid, E. Drannon Buskirk, Jr., R.D., Tom Embich, Jan Fisher, Fred Heagy, Kevin Kelly, Joe Link, David Sheridan, and Arlen Taylor.

**Paxton Creek Watershed & Education Association (PCWEA) can be found on the
Web at www.paxtoncreek.org Email at info@paxtoncreek.org**

PCWEA is now on Facebook

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