Centre County Pennsylvania Senior Environmental Corps *Newsletter*

Volunteering for future Generations

Our work is made possible by ClearWater Conservancy, the Centre County Conservation District and the Centre County RSVP.

To connect or make a gift today:

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Mail: 2555 N. Atherton St. State College, PA 16803 Your gift keeps our working flowing!

Thank you for your generous support!

March 2021

CCPaSEC President's Report

CCPASEC is no longer limited to seniors (55+). Now you can join either Centre County RSVP (Retired and Senior Volunteer Program) or Clearwater Conservancy as a prerequisite to CCPASEC membership. If you are interested in contributing or want to join us, please visit our website @ CCPASEC for additional information. A science degree is not required.

Throughout the pandemic CCPASEC continued to meet via the web and performed field site visits as permitted by the PA COVID-19 regulations. CCPASEC members support 13 teams that, weather and conditions permitting, monitor many streams each month using field kits equipped with instruments and chemical reagents to measure levels (mg/L) of phosphate, nitrate, sulfate and alkalinity. Flow (m3/sec), pH, and conductivity are also recorded. Twice a year we perform counts of macroinvertebrates - those little creatures like mayflies, stonefly larvae and riffle beetle that indicate year-round stream health. REF: CCPASEC MiniManual rev F.pdf - Google Drive

In winter critters take cover

It's our macro survey season. Fish and other cold-blooded animals adjust their body temperature and modify their behavior according to the season by adjusting their metabolism to the environment they live in. While agile and quick in warmer water, they slow down as their body temperatures drop. Macroinvertebrate have some unique adaptations to survive the winter. Like a lot of our warm-water fishes, aquatic macroinvertebrates will burrow into the mud, leaves or other stream substrate till spring. Many insects can also secrete a fluid similar to antifreeze to survive the cold.

Other organisms in water? Snails become very inactive in winter. Those present in water that freezes solid, burrow into mud and plant debris to hibernate. Mussels become dormant, too. This is evident from the darker rest rings on their shells, sometimes called “growth rings.” Most frogs hibernate in the mud below the ice, though some survive the winter in their tadpole stage.
'Tis Winter: Critters Take Cover — Allegheny Watershed Alliance (awapa.org)

Riparian Buffers

One of the best ways to protect and improve streams is to add a forested area or meadow next to the water, known as a riparian buffer. A riparian buffer of trees, shrubs, or meadow plants can protect the water from activities happening on the land.

ClearWater Conservancy works hand in hand with willing landowners who desire to improve the quality of their land and water – for themselves, their family and for all those who live downstream.

Conserved lands and restored buffers have active stewards caring for them.

Did you know...

- Riparian buffers are essential to feed, shelter, and provide travel paths to more than 95 percent of all terrestrial wildlife species in North America. This includes birds, reptiles, amphibians, mammals, and beneficial insects such as pollinators.
- Riparian buffer areas are capable of retaining more than 300,000 pounds of sediment per acre per year.
- USDA studies show that riparian buffers reduce nitrogen from agricultural runoff by 68 percent.
- What lives in the stream is the best indicator of a stream's health. Many of the stream's residents depend on the surrounding trees for their food source. https://extension.psu.edu/ and Compass | ClearWater (clearwaterconservancy.org)

The Great Lakes are threatened

The Great Lakes are threatened by toxic, greenhouse-gas-emitting algae that thrive on phosphorus pollution. It suffocates fish and contaminates drinking water.

Since the 1970s, farmers and cities have been cutting phosphorus pollution — in the form of fertilizer washing off fields and sewage — but algal blooms keep killing fish. A new study, just published in the Proceedings of the National Academy of Science, helps explain why the blooms persist: Invasive quagga mussels have effectively reengineered the largest freshwater ecosystem on Earth.

In the 1980s, quagga and **zebra mussels** were introduced by the ballasts of ships up the Saint Lawrence seaway to the Great Lakes. At first zebra mussels dominated the headlines, but over the following decades quagga mussels found their foothold and outcompeted their zebra-striped cousins. The muddy bottoms of the Great Lakes are now thick with them: Dive down and you can often find 1,000 per square foot.

One of the authors of this study, Sergei Katsev, a freshwater scientist at the University of Minnesota, Duluth, wanted to know how these new residents were changing the lakes. Katsev had expected that they would alter the water chemistry but was unprepared by how complete the transformation had been. ***It turns out***

mussels are now the most significant force controlling the total phosphorus circulating in the lakes.
As of 2016, thousands of adult quagga mussels have been found in Lake Powell, attached to canyon walls, the Glen Canyon Dam, boats, and other underwater structures, especially in the southern portions of the lake. Adult mussel populations are expected to expand and increase as the season progresses and over the next few years. https://utah.com/lake-powell

That doesn't mean efforts to clean up phosphorus pollution are a waste of time. In places where the mussel population is stable, people will still have to cut the amount of fertilizer flowing down rivers if they want to stop phosphorus-triggered algal blooms, Katsev said.

Prevention: *It's Not Just for Boaters*
Anglers, kayakers, swimmers, even seaplane pilots need to Clean. Drain. Dry. their equipment. Get specific information for specific types of recreation from the Stop Aquatic Hitchhikers webpage. Those fishing need to clean, drain, dry boots and waders on site.

Classroom learning and outdoor activities

Hundreds of teachers and professionals throughout Pennsylvania guide high school students through this natural resource environmental education program that combines classroom learning and outdoor activities. This exposure to nature and seeing how humans impact the natural world provide invaluable lessons for understanding ecosystems and our environment.

At the Envirothon, teams of five high school students compete in field testing using their knowledge in five topic areas – Soils and Land Use, Aquatic Ecology, Forestry, Wildlife, and Environmental Issues. A current environmental issue is chosen each year as the "hot topic" for the focus of this station as well as the oral presentation component.

Pennsylvania Envirothon - Educating high school students in natural resource and environmental sciences. (envirothonpa.org)

Stroud Water Research Center

Stroud Water Research Center is a not-for-profit organization that seeks to advance knowledge and stewardship of freshwater systems through global research, education, and watershed restoration. They combine educational efforts and research from several different perspectives and expertise to more efficiently advocate for soil health practices across the state, and ultimately, to reduce sediment & nutrients that runoff into local waterways.

Upcoming events

Centre Gives
On May 11th and 12th, 10th annual Centre Gives online giving event for Centre County nonprofits.

Since its inception, Centre Gives has raised over $10.3 MILLION to support local nonprofit organizations across interest areas like arts, animals, education, environment, health & social services, and more!

This year, we hope we can count on your support as local nonprofits continue to feel the effects of the ongoing pandemic.

2021 Otto's Golf Fest
Aug 30, 7:00 AM
Otto's Golf-Fest is a fun, annual **golf** "tournament" benefitting **ClearWater Conservancy** at the Boalsburg, 310 Elks Club Rd, Boalsburg, PA 16827, USA.
Golfers enjoyed great prizes, special contests, and refreshments from **Otto's.**

Volunteering for future Generations

Approaches to Environmental Education and Action

What do we as PaSEC volunteers owe to our future?

The *intergenerational gambit* is one in which organizations establish programs and policies that enable people of all ages to come together and work side-by-side to accomplish shared goals.

One hot area in the world of intergenerational programming is within the realm of environmental education and action.

Across the globe, intergenerational environmental education programs are being implemented in diverse rural, suburban and urban settings – including natural woodlands, waterways, schools, parks, gardens, and community and environmental centers. Through these programs, young people, older adults, and the generations in the middle come together to explore, build awareness, gain understanding, and, in many cases, work to restore and preserve elements of the natural environment.

Working to protect the natural environment is a goal that resonates across generations: We all breathe the same air, we all drink the same water and we all dream of a healthier future, where we can have food that we trust and an ecosystem that is sustainable. Hence younger and older generations are natural allies as protectors and stewards of the environment.
Here are some program and research highlights to help answer the question: Why embrace intergenerational approaches to environmental education and action?

- **Turning anxiety into action: *Graying Green***

Mick Smyer is a professor of psychology at Bucknell University and founder of *Graying Green*, an organization that helps others create action plans on climate change. Over time, Dr. Smyer, colleagues, and fellow climate change volunteers and advocates began establishing methods for engaging children and youth as well as older adults in conversations and actions around climate change as a way "to help people move from anxiety to action."

- **Improving children's attitudes toward the environment and toward older adults:**

In her dissertation research, Shih Tsen ("Nike") Liu (2004) compared two 4-day-residential outdoor education programs conducted at the Shaver's Creek Environmental Center for classes of fifth grade students from area elementary schools. In both programs, Penn State University students served as activity facilitators and program assistants, but only one had the added feature of including older adult volunteers as co-learners (alongside the elementary school students) as well as activity assistants. Compared to the children who worked only with college students, by the end of the program, those in the group that included older adults had significantly better attitudes toward the environment and toward older adults. In fact, the older adult volunteers were surprised (and quite pleased!) by the extent to which the children were receptive to their knowledge and views about the environment.

- ***Deepening awareness of the natural world:***

Anne Burgevin, a poet and creative writing teacher, conducts "Intergenerational Writing Outdoors" workshops as part of her P.E.N.C.I.L. (People Enjoying Creative Intergenerational Learning) program. Through her workshops, Anne has observed,

"People of varying ages are able to notice things in the outdoors *and* about one another through the act of observing and writing about the natural environment… When participants' awareness of the outdoor world expands--as they learn to be still and listen, scavenge for colors, textures, and sights, notice plant and animal life, and choose words to express their discoveries--they learn about their own voice and perspective as well as those of their fellow writers. Noticing takes on a positive life of its own."

- **Ecology-minded older adults as mentors for future generations of ecology-minded citizens:**

Stan Ingman, Tom Benjamin, and Richard Lusky, in their 1998/99 article, entitled, *the environment: The quintessential intergenerational challenge*, emphasize the important role that older adult participants play as co-learners, educators and mentors for students engaged in environmental education programs. Here's an example from a program focused on water quality.

"The Center in the Park, a senior center in Philadelphia, has developed an exciting intergenerational

environmental education program – Students, Teachers and Seniors for Water Quality Monitoring Network – which brings together the public school system, the Urban Water Quality Monitoring Network, and older people. Among other activities, the program features canoe trips on the Schuylkill River, sailing on Delaware Bay to monitor water quality, and periodic visits to Philadelphia to discuss how urbanization and industrialization are affecting water quality. Older people act as mentors for students and teachers in this program".

From an intergenerational point of view, the CCPaSEC (Centre County Pennsylvania Senior Environmental Corps) partnership with Centre County RSVP and the Centre County ClearWater Conservancy opens up exciting possibilities for attracting and engaging the under 55+ crowd in CCPaSEC-driven stream monitoring projects.

The more CCPaSEC explores and embraces intergenerational engagement opportunities with its partners, new angles emerge for pursuing the group's wonderful mission of *leaving a legacy for future generations*. I am referring to the pursuit of programs, policies, and partnerships aimed at growing the cadre of young people ready, willing, and able to take on the mantle of environmental stewardship, today and tomorrow.

References:

Ingman, S., Benjamin, T. and Lusky, R. (1999). The environment: The quintessential intergenerational challenge. *Generations, 22*(4), 68-71.

Kaplan, M. and Liu, S.-T. (2004). *Generations united for environmental awareness and action*. Washington, DC: Generations United.

Liu, S-T. (2004). Effectiveness of an intergenerational approach for enhancing knowledge and improving attitudes toward the environment. Unpublished doctoral dissertation. The Pennsylvania State University, University Park, PA.

Matthew Kaplan, Ph.D.
Professor, Intergenerational Programs and Aging @ PSU
UN presentation (May 16, 2019)

"Intergenerational perspectives on environmental education and action: Implications for promoting climate change awareness and action.

This was the title of Matt Kaplan's presentation at the UN's International Day of Families event on May 16, 2019. The event was organized by the UN Department of Economic and Social Affairs, Division for Inclusive Social Development. The event drew 260 people and was livestreamed internationally on UN-TV.

The mission of Generations United is to improve the lives of children, youth, and older people through intergenerational collaboration, public policies, and programs for the enduring benefit of all.
Generations United (gu.org)

To join us: Please call the Centre County RSVP
(Retired and Senior Volunteer Program)
Monday – Friday 8:30 am - 5:00 pm
Phone (814) 355-6816
The CCPaSEC newsletter is published quarterly except for special events. To contribute news articles, or corrections please Contact Ken Johnson via our CCPaSEC website: https://www.ccpasec.org.

"***The cure for boredom is curiosity. There is no cure for curiosity***" **– Dorothy Parker**