

Water Resources (3 credits)
LAW-839-08-4228_syllabus
SUST-739-01-4228_syllabus
UPA-680-76-4228_syllabus
Professors Tony Arnold & Rebecca Wells-Gonzalez
Course Syllabus
Fall 2022
Draft Version 7.21.22

I. Overview, Student Learning Outcomes, Learning Methods

A. Overview of the Course and Learning Methods

In this course, students will learn how to integrate the principles and methods of environmental justice and resilience justice – and the perspectives of community members, especially marginalized or underrepresented community members – into urban watershed planning and revitalization. This will occur through our participation in watershed planning for the Mill Creek Watershed in Southwestern Jefferson County (Louisville Metro, Kentucky) as part of the University of Louisville Resilience Justice Project’s partnership in this watershed planning effort, funded in part by a U.S. Environmental Protection Agency Clean Water Act Section 319 grant.

This course has several central features:

- **Community-engaged:** We will partner and engage with community members and groups in the Mill Creek watershed, learning as much or more from their everyday experiences, insights, and perspectives as they learn from us. We will seek out to include and give particular attention to those in the community who are marginalized, underrepresented, subjugated, or oppressed. Our final work products should advance the perspectives and goals of the community members, not our own personal perspectives and goals.
- **Experiential learning:** We will learn and develop skills by practicing and performing those skills through real-world experiences that focus on:
 - In-depth semi-structured interviews of community members and syntheses of their interview responses into tools that can

- be used in watershed planning (e.g., report of issues, proposed solutions, community advocacy communications);
- Policy analyses of relevant local policies and laws affecting the Mill Creek watershed and its neighborhoods, and proposed policy and legal reforms to advance community-based environmental and resilience justice;

Successful completion of this course provides 3 credits of live-client experiential learning towards the graduation requirements for law students.

- **Field study:** We will learn in the Mill Creek watershed itself at various sites that are relevant to our work and learning, and also by talking with watershed planning partners and community members. The course will meet off-campus.
- **Justice-centered:** This course focuses on two particular (and closely related) types of social and racial justice: environmental justice and resilience justice. Our work seeks to understand systemic inequities in urban watersheds and neighborhoods and to identify reforms that make our institutions, environments, and communities more equitable. Our methods are inclusive and attentive to power disparities.
- **Social-ecological systems:** This course takes a systems-oriented approach. We explore the interactions among urban ecosystems, particularly urban watersheds and waterways, and social systems, including planning and governance institutions and human communities, such as neighborhoods. We refer to these as social-ecological systems. We will also come to understand how many laws are poorly adapted to the complexities of social-ecological systems and require reforms.
- **Ethics and cultural competence:** We will develop and exercise a high level of cultural competence in our interactions with community members and watershed planning partners. We will act in accordance with the highest standards of ethics, including human-subject research protections and University of Louisville Institutional Review Board requirements.
- **Humanized:** This course takes a human-centric approach, utilizing the Humanizing Pedagogy developed by Professor Arnold and built on Paulo Freire's *Pedagogy of the Oppressed*. See Part C of this section.

B. Student Learning Outcomes

Upon completion of the class, students will be able to:

- 1) Describe the features and functions of:
 - urban watersheds as systems and
 - the governance (legal, planning, and policy) institutions that affect urban watersheds;
- 2) Describe and apply the principles and methods of environmental justice to watershed planning;
- 3) Describe and apply the principles and methods of resilience justice to watershed planning;
- 4) Gather facts, everyday life experiences, insights, ideas, values, and perspectives from people affected by policy and legal institutions, including suggestions for how systems could be made more equitable;
- 5) Communicate effectively with people using cultural competence, empathy, open-ended questions, and semi-structured interviews;
- 6) Engage in policy, planning, legal, and institutional analyses using environmental justice, resilience justice, and grassroots community-based perspectives, including attention to systemic inequities;
- 7) Develop policy, planning, legal, and institutional reforms that advance environmental justice, resilience justice, and grassroots community-based perspectives, including attention to systemic inequities;
- 8) Identify, code, analyze, and synthesize multiple perspectives, especially the voices of marginalized community members, into themes, patterns, and recommendations for watershed planning, including use of best practices for controlling researcher bias;
- 9) Work effectively on a research and planning team; and
- 10) Reflect deeply on lessons learned from experiences with community-member interviews, policy analyses, and watershed planning.

C. Humanizing Pedagogy

Professor Arnold use a Humanizing Pedagogy – a set of principles about learning and teaching – in all the classes he teaches. This Humanizing Pedagogy builds on Paulo Freire’s famous *Pedagogy of the Oppressed*. The principles of a Humanizing Pedagogy are:

1. Teaching and learning are human-centered. Learning is a fundamentally and authentically human experience.
2. Teaching is learner-centered, characterized by empathy, care, and commitment to the well-being, dignity, and human development of each and every learner.
3. Teaching and learning are inclusive, supportive, and collaborative. Teaching and learning center the experiences of the marginalized and oppressed as parts of co-learning processes. A central message is that we are not alone.
4. Teaching and learning are justice-centered, including anti-oppression and anti-racism. Learners are enabled and empowered to seek justice in society. Learners consider how any of us can be both oppressor and oppressed.
5. Learners are enabled and empowered to see humans at the center of the work and life experiences for which the learners are preparing, such as human-centered lawyering.
6. Learning is active, experiential, community-engaged, and contextualized.
7. Teaching and learning are adaptive.
8. Mentoring of learners meets their core needs for human engagement with their educational, professional, and life journeys.

D. Planning Program Accreditation Curriculum Elements Met In This Course

The knowledge, skills, and values highlighted in **green** are those for which Water Resources provides student mastery and which have primary focus in this course. The knowledge, skills, and values highlighted in **yellow** are those for which Water Resources provides either introductory exposure or some competency and which have secondary focus in this course. The knowledge, skills and values not highlighted are not covered in this course to any meaningful degree.

1) General Planning Knowledge: The comprehension, representation, and use of ideas and information in the planning field, including appropriate perspectives from history, social science, and design and other allied fields.

a) **Purpose and Meaning of Planning:** why planning is undertaken by communities, cities, regions, and nations, and the impact planning is expected to have.

b) **Planning Theory:** behaviors and structures available to bring about sound planning outcomes.

c) **Planning Law:** legal and institutional contexts within which planning occurs.

d) Human Settlements and History of Planning: growth and development of places over time and across space.

e) **The Future:** relationships between past, present, and future in planning domains, as well as the potential for methods of design, analysis, and intervention to influence the future.

f) Global Dimensions of Planning: interactions, flows of people and materials, cultures, and differing approaches to planning across world regions.

2) Planning Skills: The use and application of knowledge to perform specific tasks required in the practice of planning.

a) **Research:** tools for assembling and analyzing ideas and information from prior practice and scholarship, and from primary and secondary sources.

b) **Written, Oral and Graphic Communication:** ability to prepare clear, accurate and compelling text, graphics and maps for use in documents and presentations.

c) **Quantitative and Qualitative Methods:** data collection, analysis and modeling tools for forecasting, policy analysis, and design of projects and plans.

- d) **Plan Creation and Implementation:** integrative tools useful for sound plan formulation, adoption, and implementation and enforcement.
- e) **Planning Process Methods:** tools for stakeholder involvement, community engagement, and working with diverse communities.
- f) **Leadership:** tools for attention, formation, strategic decision-making, team building, and organizational/community motivation.

3) **Values and Ethics:** Values inform ethical and normative principles used to guide planning in a democratic society. The Program shall incorporate values and ethics into required courses of the curriculum, including:

- a) **Professional Ethics and Responsibility:** key issues of planning ethics and related questions of the ethics of public decision-making, research, and client representation (including the provisions of the AICP Code of Ethics and Professional Conduct, and APA's Ethical Principles in Planning).
- b) **Equity, Diversity and Social Justice:** key issues in equity, diversity, and social justice that emphasize planners' role in expanding choice and opportunity for all persons, plan for the needs of the disadvantaged, reduce inequities through critical examination of past and current systems and disparities, and promote racial and economic integration.
- c) **Governance and Participation:** the roles of officials, stakeholders, and community members in planned change.
- d) **Sustainability and Environmental Quality:** environmental, economic, and social/political factors that contribute to sustainable communities, and the creation of sustainable futures.
- e) **Growth and Development:** economic, infrastructure, social, and cultural factors in urban and regional growth and change.
- f) **Health and Built Environment:** planning's implications on individual and community health in the places where people live, work, play and learn.

E. Legal Skills Developed in this Course

This course is considered a “live-client” experiential course for law students, because you will be developing proposals for legal and policy reforms for local government agencies, contributing to the development of a watershed plan under Clean Water Act Section 319(h), and interviewing community members to learn facts, views, goals, needs, and similar matters for integration into a watershed plan. In performing these legal skills, you will learn how to and be expected to use cultural competence and to address systemic injustices or inequities. Even though the interview methods are those used in qualitative social-science research, the skills that students will develop doing these interviews will translate well into client interview methods, taking depositions, factual inquiry, and the design of planning processes and legal and policy reform processes.

II. Course Materials

There are two required books to acquire for this course:

- Smardon, Moran, & Baptiste, *Revitalizing Urban Waterway Communities: Streams of Environmental Justice* (Earthscan/Routledge 2018), ISBN 978-0-367-60589-6, and
- Galletta, *Mastering the Semi-Structured Interview and Beyond* (New York University Press 2013), ISBN 978-0-8147-3294-6.

In addition, there will be several electronic readings available on Blackboard and/or on the Internet through provided links.

You will also be required to use a specified version of Dedoose software, a social-science software for recording, coding, synthesizing, and analyzing qualitative data, such as semi-structured interview data. The University of Louisville Resilience Justice Project will purchase a monthly subscription of the software for you for the months of October, November, and December, but you will need to collaborate with the IT staff and comply with certain system and usage requirements. You will also be required to comply with the Mill Creek Community Study research protocol and IRB requirements when using Dedoose.

III. Course Requirements and Evaluation

There are two aspects of grading for this course. One aspect involves the minimum requirements to earn a passing grade and academic credit for the course. If you don't meet all of the minimum requirements of the course, you will automatically receive an F in the course. This is because this course involves work for real human beings, real government agencies and organizations, and real planning processes. There are numerous legal and regulatory requirements that govern our work, as well as core ethical obligations. The second aspect involves how your performance on various tasks will be evaluated for the course grade.

The minimum requirements that you must meet to pass the course:

- Create an iRIS profile and upload your c.v. no later than the end of the day, Wednesday, September 7. Be sure to hit save.
- Complete and submit your Conflict of Interest Attestation and Disclosure Form in iRIS no later than the end of the day, Wednesday, September 7. Be sure to hit save.
- Complete all of your CITI Human Subject and HIPAA training, receive your certification, and download and email a PDF of your certificate to Professor Arnold no later than the end of the day, Wednesday, September 7.
- Complete in-class Mill Creek Community Study training.
- Participate in interview teams conducting at least 2 interviews of community members (beyond the practice sessions in class), by the end of the semester.
- Engage in coding, analysis, quality-control checks, and recoding of at least 2 interviews, as assigned, using Dedoose in CardBox, by the end of the semester.
- Engage in public policy analysis, as assigned, using resilience justice principles/frameworks, by the end of the semester.
- Work collaboratively with classmates.
- Attend all 7 of classes in weeks 1, 2, 4, 5, 6, 7, and 8, or make alternative make-up arrangements with Professor Arnold or Professor Wells-Gonzalez if you have to be unavoidably absent (what counts as a make-up arrangement will depend on what's being missed).
- Comply with all human-subject-protection, IRB, research-protocol, course, information-security, and confidentiality requirements.

The tasks/assignments on which you will be evaluated are:

1. 20%: Short-essay answers to 3 questions about watersheds, environmental justice, and resilience justice to demonstrate mastery of basic concepts and their application to the Mill Creek watershed. Recommended length of answer per question: 800-1,000 words (total for all: 2,400-3,000 words). Due by the end of the day on Wednesday, October 12.
2. 20%: Interview techniques in interviews of community residents; quality of interview coding, analysis, and synthesis, quality of interview recoding and revised analysis/synthesis. Interviews and coding will occur in Weeks 7-13 of the course.
3. 20%: Performance of 2- or 3-person teams on policy analyses and recommendations, as assigned, using resilience justice principles/frameworks. Policy research and analyses will occur in Weeks 7-13 of the course.
4. 20%: Quality of final report produced by all students as a whole class, including EJ audit (already provided for you), Mill Creek Community Study (aggregated, synthesized, and analyzed results of interviews), and Resilience Justice Policy Analyses and Recommendations. Due by the end of the day on Monday, November 28.
5. 10%: Your classmates' assessments of your overall contribution to our work. Due by the end of the day on Monday, December 5.
6. 10%: Reflection paper on lessons learned from your work in the course. Due by the end of the day on Monday, December 5.

During the semester, students will be provided further details about how interviews will be assigned among interview teams and how interview transcriptions will be assigned for coding and recoding.

The Resilience Justice Policy Analyses and Recommendations will use resilience justice analytical frameworks to assess the extent to which the following policies (or sets of policies) improve the adaptive capacities (resilience) and reduce the vulnerabilities of marginalized neighborhoods (low-income neighborhoods of color) in the Mill Creek watershed or need to be changed in order to do so:

- 1) MSD's watershed management, flood management, stormwater control, and water pollution prevention policies;

- 2) Louisville Metro's parks and natural areas policies and management, including collaborations with non-governmental organizations (e.g., The Nature Conservancy);
- 3) Louisville Metro's tree canopy, vegetation, and heat-island policies and programs;
- 4) Louisville Metro's brownfields remediation, redevelopment, and environmental compliance policies;
- 5) Louisville Metro's planning and zoning policies, including the Land Development Code Equity Reform initiative;
- 6) Louisville Metro's housing policies, including fair housing, affordable housing, prevention of gentrification and displacement, and collaborations with various organizations and government agencies with respect to housing supply, affordability, and access;
- 7) Louisville Metro's public health and health equity policies and programs; and
- 8) Louisville Metro's climate change policies and programs.

Students will work in teams of 2 (or 3) to analyze local policies and recommend reforms, producing a written contribution to the class's final report (i.e., a subsection of the section on Resilience Justice Policy Analyses and Recommendations). Early in the semester, students will select form teams of two students by selecting with whom they wish to work (depending on the final size of the class, there might be one or two teams of three students formed). Each team will be assigned a priority for policy-area selection of 1-8 based on an internet random number generator. The team with priority 1 will be first to select its policy area, and so on in order of priority, with the priority-7 team selecting a policy area from the remaining two topics, and priority-8 team not having any choice (i.e., having to take the remaining unclaimed policy area).

Grading rubrics will be provided in advance of assignments and tasks so that students will be aware of how they will be evaluated, but at appropriate times in the semester.

IV. Class Meetings and Attendance

The class will meet from 12:30 p.m. to 3:00 p.m. on Fridays at various locations in the Mill Creek watershed in southwestern Louisville. You will receive notification of the exact location of each week's class meeting by email (to your UofL email address) and on the course Blackboard site.

Normally, class meetings will occur outdoors. You are strongly encouraged to bring plenty of water with you to class, wear sunscreen, a hat, sunglasses, and perhaps insect repellent, and to dress for the weather. Shorts, tank tops, and athletic shoes are especially appropriate for this course, and you are being provided – at no expense to you – a moisture-wicking Resilience Justice tank top (although there are no requirements or expectations that you wear it). It's a good idea to have readily available a rain jacket or poncho in case an unexpected rain arises. In case of inclement weather, we might move a class meeting to a fully online meeting. Please check your UofL email and the course Blackboard site for up-to-date announcements.

The class will not meet September 2, the Friday of Labor Day weekend, although you will be expected to complete online human-subject research training around this same time.

V. Office Hours

Tony Arnold's Office Hours

My office hours are Tuesdays and Thursdays, 12:15-1:45 p.m., except on the days of official Faculty meetings (usually just once a month on a Tuesday).

- I will usually be outdoors in the Courtyard during my office hours if the weather is good. As much as possible, I try to meet with students outdoors (e.g., in the Law School courtyards) where fresh air, sunshine, etc. are healthier.
- At times, a student might have set up an appointment with me during my office-hours time, and we might be elsewhere at the Law School or on-campus. Please text me at (502) 216-5534 to find out where I am and when and where I can meet you.
- I'm also able to meet with students at various times through online platforms, such as Teams, Zoom, or Blackboard Collaborate. For example, I could make arrangements to meet online with students at 9:00 p.m. most evenings, which is another time and format that some students prefer.
- If we meet in-person indoors, I will need to wear a mask for my own health and my elderly parents' health (as I'm a caretaker for them and their health is vulnerable).

My office is Room 281 of Wyatt Hall (the Brandeis School of Law), my cell phone number is (502) 216-5534, and my email is tony.arnold@louisville.edu.

If you want to meet with me, please contact me by email so that we can make mutually agreeable arrangements.

Rebecca Wells-Gonzalez's Office Hours

Professor Wells-Gonzalez's office hours will be posted on Blackboard Announcements. At the time that this Syllabus was being finalized, she was still working out the details, given the various classes she teaches.

VI. About Your Professors

This class is co-taught by Professors Tony Arnold and Rebecca Wells-Gonzalez.

Professor Tony Arnold teaches in both the Brandeis School of Law and the Department of Urban and Public Affairs as the Boehl Chair in Property and Land Use, and directs the interdisciplinary Resilience Justice Project. Professor Arnold has worked in the environmental justice field for over 40 years as a student, lawyer, scholar, teacher, government official, community leader, and collaborator with low-income communities of color. He has been involved extensively in watershed planning, water planning, and land-use planning, as well publishing and teaching on these subjects. His resilience justice frameworks and the Resilience Justice Project emerged out of his environmental-justice and watershed-resilience work, while serving as a Visiting Scholar at UCLA in Fall 2016 and collaborating with grassroots environmental-justice organizations on a grant-funded project in low-income neighborhoods of color in Los Angeles. He is a leader of a faith-based environmental organization, Earth Keepers 360. He loves Kentucky's waterways, Louisville's neighborhoods, mentoring students, weight-lifting, and outdoors activities in nature, especially hiking.

Professor Rebecca Wells-Gonzalez teaches in the Communication Department for the University of Louisville and is the Communication Program Chair at Ivy Tech Community College in Sellersburg, IN. Professor Arnold is her Dissertation Advisor/ Committee Chair and mentor for her Ph.D. studies in the Department of Urban and Public Affairs, where she studies justice in neighborhood organizations. Professor Wells-Gonzalez has been a Louisvillian for over a decade, and lives in the South End with her spouse, son, dogs, fish, and chickens. She loves sustainability, self-sufficiency, adopting other people's hobbies, and teaching.



VII. Assignments and Topics

Week 1: Watersheds, Environmental Justice, Resilience Justice, & Mill Creek Watershed

Read:

- a) Resilience Justice Project About Flyer (Blackboard)
- b) Arnold, Framing Watersheds chapter (Blackboard)
- c) Mill Creek Watershed Planning Environmental Justice and Resilience Justice Frameworks (Blackboard)
- d) Mill Creek Watershed Environmental Justice Audit (Blackboard)

Class Meeting: August 19

Week 2: Mill Creek Community Study

Read:

- a) Mill Creek Community Study Research Protocol (Blackboard)
- b) Mill Creek Community Study Recruitment Documents (Blackboard)
- c) Mill Creek Community Study Informed Consent Document/Preamble (Blackboard)
- d) Mill Creek Community Study Interview Instrument (Blackboard)
- e) Mill Creek Watershed Map (Blackboard)

Class Meeting: August 26

Week 3: Human Subject Research Requirements

Create an iRIS profile and upload your c.v. (resume) to it.

Complete the Conflict of Interest Attestation and Disclosure Form in iRIS.

Complete the Human Subject and HIPAA training in CITI and pass the tests so that you are certified to do human-subject research. Email your CITI certification in PDF to Professor Arnold.

No class meeting on September 2 (Labor Day weekend)

September 7 (by end of the day): you must have completed and submitted all of the requirements for Week 3.

Week 4: Semi-Structured Interviews I

Read: Galletta, pp. 1-118

Class Meeting: September 9

Week 5: Semi-Structured Interviews II

Read: Galletta, pp. 118-193

Class Meeting: September 16

Week 6: Resilience Justice and Urban Water Institutions

Read:

a) Arnold and Resilience Justice Project Researchers, Resilience Justice and Community-Based Green and Blue Infrastructure, 45(3) *William & Mary Environmental Law & Policy Review* 665-737 (2021), downloadable for free from the Social Science Research Network (SSRN) at:

<https://ssrn.com/abstract=3799314>.

b) Arnold and Resilience Justice Project Researchers, Resilience Justice and Urban Water Planning, 52(5) *Seton Hall Law Review* 1399-1459 (2022), available for free download on SSRN at

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4167206.

c) Adler, Urban Water Environment Legal Framework chapter (Blackboard).

d) Adler, Urban Water Institutions chapter (Blackboard).

Class Meeting: September 23

Week 7: Environmental Justice and Urban Water Revitalization I

Read: Smardon et al., pp. 1-94.

Class Meeting: September 30

Week 8: Environmental Justice and Urban Water Revitalization II

Read: Smardon et al., pp. 95-201.

Class Meeting: October 7

Wednesday, October 12 (by end of the day): You must submit (on Blackboard), your short-essay answers to 4 questions about watersheds, environmental justice, resilience justice, and inclusive community engagement to demonstrate mastery of basic concepts and their application to the Mill Creek watershed. The questions will be posted on Blackboard and emailed to you.

September 24 to November 11 (Weeks 7-13): Interviews, Interview Coding/Analysis/Synthesis/Recoding, Policy Research & Analysis.

We will continue to meet in-person for class during Weeks 9-13, even though we don't have any new readings. We will discuss various "applied" approaches to interviews, coding, recoding, policy research, policy analyses with resilience justice frameworks, policy recommendations, and completion of the final report from the class.

November 12 to November 28 (Weeks 14-15): Synthesis and Completion of Final Report, which will include EJ audit (already provided for you), Mill Creek Community Study (aggregated, synthesized, and analyzed results of interviews), and Resilience Justice Policy Analyses and Recommendations.

November 28 (end of the day): the class Final Report is due on Blackboard.

December 5 (end of the day): you must submit (on Blackboard) both of the following:

- a) your assessment of your classmates' overall contributions to our work;
- and
- b) your reflection paper on lessons learned from your work in the course.

VIII. Title IX/Clery Act Notification

Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide (<http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure>).

IX. Accommodations

Students with disabilities who require accommodations must make those requests known to the Assistant Dean for Student Affairs and Diversity of the Law School, Dean Crystal Coel, crystal.coel@louisville.edu. These requests should be made as early as possible to allow time for referral to the University Disability Resource Center as needed. The DRC handles the evaluation of the documentation of the disability and the relationship to the requested accommodation. For more information on accommodations, see the Handbook for Students and Applicants with Disabilities on the Law School website. For more information regarding disability services, see <http://louisville.edu/disability/>.

X. Mental Health Resources

Life and studies at universities can be stressful experiences, from navigating new spaces, meeting new people, working through challenging coursework, missing familiar places and people, dealing with deadlines, workloads, and costs, and the like. If you are feeling overwhelmed, troubled, or just need to talk to someone, please contact the University of Louisville Counseling Center at 852-6585 or walk-in anytime between 9:00 am and 4:00 pm on Monday through Friday (when the center is open) for an urgent consultation.

In case of a life-threatening emergency (including thoughts of hurting yourself or someone else), call:

- 911
- 988, Suicide & Crisis Lifeline
- University Police (ULPD) (502) 852-6111
- Emergency Psychiatry, Univ. of Louisville Hospital (502) 562-3120
- 24/7 Adult Crisis Line (502) 589-4313 or 800-221-0446
- Crisis Text Line: Text HOME to 741741

XI. Photographs

The following photographs depict the Mill Creek watershed, past Water Resources classes, or some of the activities that will occur in this class. Sources: Tony Arnold and Louisville Metro Government.









Mill Creek Cutoff near outlet to Ohio River



Lower Mill Creek at Outlet to Ohio River





