

Dams in the Champlain Valley

Watershed Science Apprenticeship 2020-21

Course Information (as of 9-14-2020)



Schedule:

Activities take place 2-3 times per month, currently scheduled on Wednesdays. Most will take place virtually, though some in-person field outings are planned. Students will be encouraged to pursue their own research on local dams throughout the course. Individual topics of research relating to dams are also encouraged, and the schedule will remain flexible to incorporate the individual interests of each cohort. Field trips requested or suggested by students during the course may be incorporated or substituted for proposed activities

Activity	Description
Preview Schedule	
Introduction (via Zoom)	Meet to discuss student interests, course syllabus, and topic background
Professional Speaker: Dam Removal Task Force member	Hear from a professional leading Champlain dam management
Dam Exploration: Local Dams	Groups will attend, in person or virtually, a field exploration of a dam in their area.
Dam Exploration: Willsboro Dam	Willsboro dam case study: Pros and cons of dam removal and community engagement
Professional Speaker: US Fish and Wildlife, Salmon Restoration	Case Study: Salmon Restoration and Dams in the Champlain Valley
Dam Exploration: Winooski One Dam	Examination of fish ladder and lift visit at operational hydroelectric dam in Winooski
Professional Speaker: Biologist	Other biological impacts of dams (mussels, macroinvertebrates, birds, plants)
Dam Exploration: Rural Addison County Dams	Explore small, rural dams in Addison county to consider their ecological impacts
Professional Speaker: Historical Dams	Discuss colonial Champlain Valley and of rationale for dam building
Dam Exploration: Penfield Pond Dam	Examine dam in historic location, discuss pros and cons of removal
Digital Mapping Project	Culminating project using ESRI StoryMap to illustrate group research
Additional topics might include hydrology, recreational fishing, riparian habitat and restoration, dam engineering, and more.	

LCMM staff will do our utmost to schedule WSA activities to accommodate all students, but because of the nature of the program and restrictions due to COVID-19, we understand that students may not be able to attend all events. All field outing and professional speakers will be recorded for those students not able to attend in person.

Course Context

There are hundreds of dams around Lake Champlain, ranging from small dams from the early 1800s to large modern hydro-electric dams. These human-made structures were the earliest way to supply power to Champlain Valley industry, and have served important purposes in the past. At the same time, the introduction of dams into the ecosystem has had immense unintended consequences throughout our history. The story of the creation and removal of dams in the Champlain Valley is one of individual ownership, collective good, environmental impact, habitat connectivity, and many more complex topics.

Course Objectives

The Watershed Science Apprenticeship has three main objectives:

- a) Introduce students to professionals in the wide range of fields related to watershed science and dam management
- b) Enable students to investigate how natural and human forces over hundreds of years have impacted this region
- c) Help to spread awareness of dam-related issues through a digital mapping project

Learning Outcomes

Students who complete this program will be able to:

- Practice safe and environmentally sound behavior on and near bodies of freshwater (such as during boating and streambank activities)
- Conduct physical, chemical, and biological observations, measurements and tests of streams and rivers, considering human alterations to those waterways
- Synthesize information about historic impacts of dams and about mitigation strategies to correct negative impacts
- Explain changes to the natural history and wildlife habitats of dammed waterways
- Work collaboratively to understand, approach, and execute scientific and historical projects
- Establish communication with at least one person or organization dedicated to dam management, water management and/or river systems.

Requirements

Students must:

- Participate in virtual lessons and outings, and respond to activities, usually in brief formats such as a one- or two-paragraph journal entry and/or a short on-line survey.
- Pursue independent work associated with WSA, Dams in the Champlain Valley. This will include independent or group research on local dams, to be posted on a collaborative and cumulative digital map. Maritime Museum staff will guide and work with students on an individual basis to reach flexible pathway goals.
- Participate in a program assessment at the end of their participation.

Grading

As of 9/14/20

LCMM staff will not determine grades. Students will be provided with a self-assessment rubric. Proficiencies will be determined by school, if desired. Credits may be available in History, Biology, Environmental Sciences, Geology, as well as other subjects.

Transportation

Transportation to and from any WSA activities will be left to individual students during COVID-19. We understand that in many cases in-person attendance at field outings will be difficult. All field outings and speaker presentations will be recorded for those students not able to attend in person.

Accommodations for students with disabilities

Reasonable accommodations will be made for students with disabilities. Some in-water field experiences are not accessible to movement-challenged individuals. However, excellent resources are available digitally and in print that will allow all students to succeed in learning about watersheds.

Inclusivity Statement

Participants in the WSA are encouraged to become friends and colleagues with students from outside their home school districts. In addition, all participants should expect to:

- Share their unique experiences, values and beliefs
- Honor the uniqueness of their colleagues
- Appreciate the opportunity that we have to learn from each other in this community
- Value each other's opinions and communicate in a respectful manner
- Keep confidential discussions that the community has of a personal nature
- Use this opportunity to help LCMM improve the experience for future cohorts

Grounds for Dismissal

A student will be asked to discontinue participation in the WSA if the student:

- Fails to respond in a timely manner to WSA communications
- Fails to attend group meetings or field outings (virtual or in person) without communicating with LCMM staff
- Disrupts group outings with misconduct, language, behavior toward another student, staff member or equipment that compromises the experience of other participants or is any way unsafe by the standards of LCMM staff
- Other reasons determined by LCMM with the agreement of the sponsoring school.

Any student who is asked to discontinue participation is entitled to a meeting to discuss the situation with LCMM staff at a mutually agreeable time.

Register:

<https://www.lcmm.org/learn/for-students/watershed-science-apprenticeship/>

Contact:

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