

Lake and Stream Ecology/Water Quality Workshop

NeSoDak Environmental Learning Center – Waubay, SD

July 23-25, 2024

This workshop is designed for three audiences; resource agency personnel, lake association members and the public who want to better understand the resources they work with or live by; teachers who want to lead their students on field trips to local water bodies to conduct water quality testing and bio-assessment; and college students earning degrees in natural resource or science fields. Participants can attend the two-day workshop to learn about basic limnology or the three-day workshop if interested in learning about basic limnology and bio-assessment of lakes and streams. For teachers and college students there are two options to earn Continuing Education Unit Credits (CEU) and/or under-graduate and graduate credit hours. The two-day workshop (Wednesday and Thursday) will earn teachers 1.3 Continuing Education Units. The three-day workshop (Tuesday through Thursday) will earn teachers 2.0 Continuing Education Units or 1 Credit Hour for students and teachers needing undergraduate or graduate credit. Lodging and meals are provided at no cost to workshop participants. Those interested in receiving CEUs and under-graduate/graduate credit must pay a fee of \$45 for 1 credit hour and \$15 for the CEU Certification.

The three-day workshop will begin at **9:00 am on Tuesday July 23rd** with a unit on stream bio-assessment. Participants in this unit will be provided with invertebrate keys and a set of preserved reference specimens to take home that will include as many taxa as possible. The stream ecology unit of the workshop will include travel to one or more sites for collection of stream invertebrates, demonstrations of sampling equipment, and simple stream assessment techniques, and water quality measurements. Following the collection of stream invertebrates, the group will return to NeSoDak to sort, identify, and classify the organisms according to their pollution tolerance utilizing identification keys and references. Participants will use the collected invertebrates to assess the ecological health of the sampled streams using bio-assessment forms. The goal of the bio-assessment is to provide the participants with the knowledge and tools necessary to teach a unit on stream ecology.

On Wednesday and Thursday (July 24, 25), two-day and three-day attendees will take part in classroom lectures and demonstrations on basic limnology at the NeSoDak Environmental Learning Center. Several hands-on demonstrations will be taught that participants can use to demonstrate to others limnology principles such as aquatic photosynthesis, stratification, aquatic food chains, biomagnification, and the “Lake Game”. Workshop participants will receive a workbook and activity guide, and the “Healthy Water, Healthy People” educator’s guide. A “Project Learning Tree” workshop will be conducted Tuesday evening for interested workshop participants.

Workshops hours will run from 9:00 am to 10:00 pm on July 23; 9:00 am to 5:30 pm on July 24; and 8:00 am to 1:00 pm on July 25.

The workshop will be limited to 25 people. Participants must make their own travel arrangements to NeSoDak. Travel to and from sampling sites will be provided by the workshop. Please forward the

completed registration form to the Day Conservation District by **July 1, 2024**. A separate health and participation form for NeSoDak must be completed and turned in when you arrive at camp.

Evening activities on July 24 may include kayaking, stand-up paddling, or canoeing on Enemy Swim Lake.

The workshop will be led by Dave German, retired South Dakota State University; Dennis Skadsen, retired Day County Conservation District; Marnie Lamle, Project Learning Tree; and Cory Zirbel, Project Coordinator Day County Conservation District

Participants may also bring their own boats to fish on Enemy Swim or one of several nearby lakes during the evening.

Participants will need to bring the following items.

Sleeping bag or bedding and pillow

Towels and wash clothes

Personal hygiene items (sun block and insect repellent recommended)

Closed toe sandals, water socks, hip boats or waders for wading in streams and lakes

Shorts or swimsuits for wading/kayaking

Rain gear

Water bottle

Optional Items

Camera

Notebook

Hiking boots

Entertainment for after hours at camp - I-pods, DVDs (no inappropriate material please)

Laptop Computer (Wi-Fi available)

Kayaks, canoes, or paddle boards

Note: camp buildings are smoke free, no alcohol allowed anywhere on campus!