



# Northeast Snow Survey (NESS) Feasibility Study

Fall 2025 Update

**The primary goal of the Northeast Snow Survey (NESS) Feasibility Study is to expand snowpack and weather monitoring in the region by designing a snow survey that meets interest-holder needs. Ultimately, NESS will comprehensively monitor snowpack, weather, and hydrological variables across mountain ranges in the region.**

The first phase of the feasibility study focused on information gathering (1-3 below). These objectives are complete in Fall 2025, and the project has moved into its final phases (4-6 below).

## 1. Interest holder input

We solicited input via online surveys, interest-holder workshops, and phone/video interviews across diverse interests including researchers (climate, ecology, wildlife), forecasters (flow/flood, weather, avalanche), land managers (forestry, agriculture, wildlife, infrastructure, outdoor recreation), environmental educators, and individual recreationists. From the synthesized input gathered from the 170+ interest-holders, we identified data needs to support three main network objectives: (1) flood and water supply forecasting, (2) safe community access to public lands and outdoor recreation infrastructure, and (3) informing management strategies on working lands and enhancing understanding of natural ecosystems.

## 2. Snow and weather monitoring inventory

Our comprehensive data scan of existing manual

and automated snow and weather monitoring in the region identified spatial and temporal gaps (such as high-elevation areas and real-time data transmission) that should be prioritized in the network design. The project also included a citizen science component where 1,360 Community Snow Observations were gathered during the project period to help refine our understanding of spatial variability in complex mountain terrain (Figure 1).

## 3. Field site visits

Snow and weather monitoring sites in Utah, New York, New Hampshire, and Vermont informed the network design phase. We gathered information about best practices for data management, sensor options, and considerations for siting in remote locations during these visits, which included USDA NRCS and NWS representatives alongside the NESS team.

## 4. Systems engineering

The NESS team is translating the input from interest-holders, takeaways from field site visits, and insights from the data scan to identify and prioritize metrics to serve the three objectives. These findings guide specifications for data collection and siting that will produce essential data for the region (Figure 2).

## 5. Developing network design scenarios

All of the above serve as inputs to the network design, which focuses on a framework for measurements that directly tie back to the project objectives and data needs identified by interest-holders. This phase is ongoing.

## 6. Reporting out

As the final design phase nears completion, interest-holders will preview the design and project conclusions and have opportunities to provide final feedback to the project team.

**NESS:** Our goal is to comprehensively monitor snowpack, weather, and hydrological variables across elevational gradients and mountain ranges in the region so that we can better understand the impacts of changes on mountain snowfall and runoff, mountain ecology, flood and avalanche danger, backcountry recreation, and tourism.



Fig 1. Community Snow Observation being recorded.

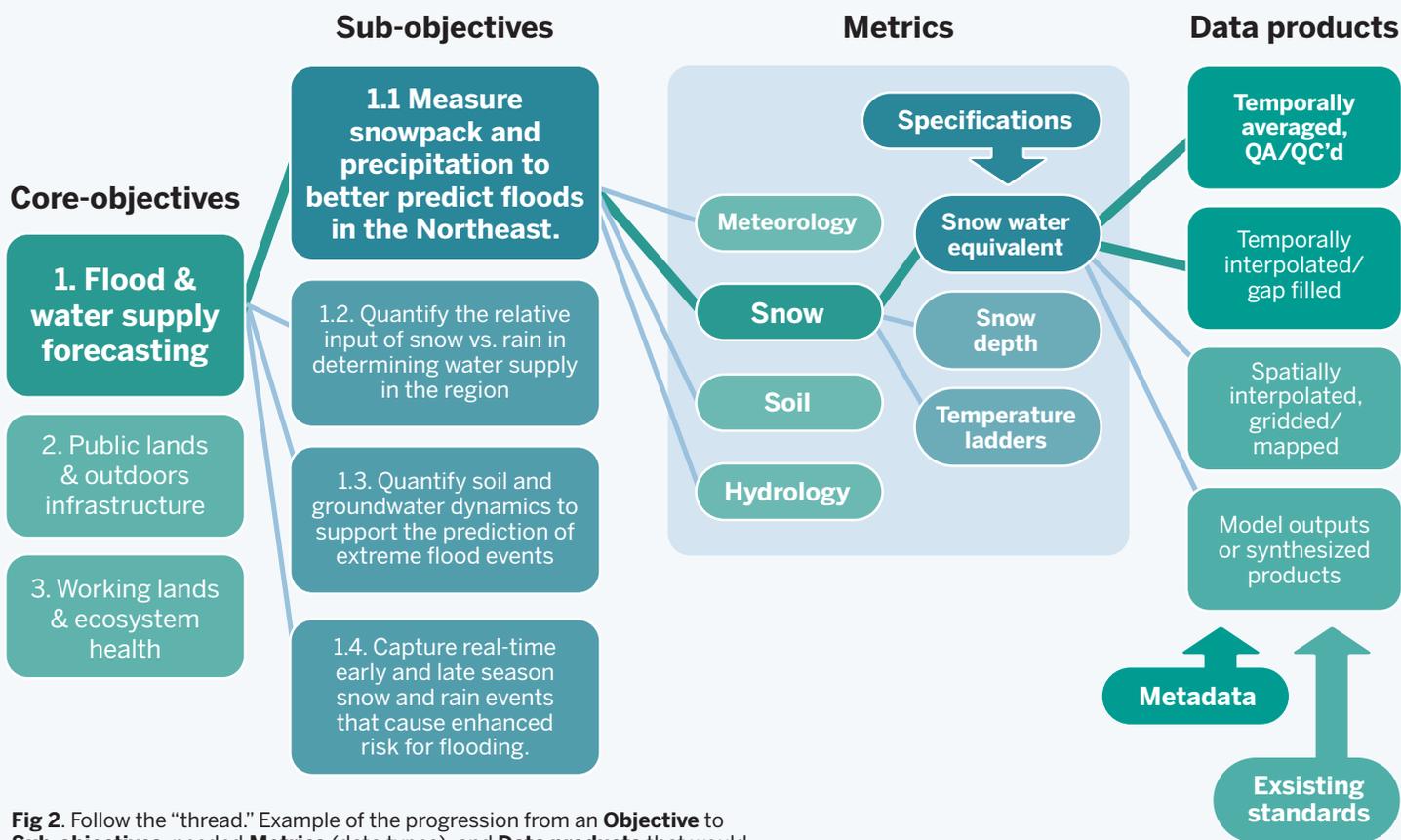


Fig 2. Follow the “thread.” Example of the progression from an **Objective** to **Sub-objectives**, needed **Metrics** (data types), and **Data products** that would result from the NESS network. The systems engineering approach ensures that we will address specifications, including siting, that are important in delivering high-quality, relevant data products to meet identified interest-holder needs.

## Contacts

AMC: [snelson@outdoors.org](mailto:snelson@outdoors.org)  
 University of New Hampshire (lead):  
[elizabeth.burakowski@unh.edu](mailto:elizabeth.burakowski@unh.edu)  
 Updates and information  
<https://sites.usnh.edu/ness/>



This work was supported by the U.S. Department of Agriculture Natural Resource Conservation Service.