

# Climate Outdoors Workforce Initiative (COWI) Landscape Analysis

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Kelly Ault, Vermont Outdoor Business Alliance

Brian Lamoureux, Green Mountain Sustainability Consulting

Cate Starmer, Starmer Works

Agency of Natural Resources Climate Action Office, Vermont Department of Labor, Office of Workforce Strategy and Development, Vermont Outdoor Recreation Economic Collaborative

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## Executive Summary

In the face of mounting climate change impacts, the Climate Outdoors Workforce Initiative (COWI) strengthens the knowledge, skills, and capacity of Vermont's outdoor professionals to better face and recover from climate risks while attracting new workers into careers essential to Vermont's adaptation and resilience. COWI aligns climate, workforce, and economic development initiatives from the State of Vermont and the outdoor economy.

Administered by the Vermont Outdoor Business Alliance (VOBA), project partners are the Vermont Agency of Natural Resources Climate Action Office, Vermont Department of Labor, Vermont Office of Workforce Strategy and Development, and Vermont Outdoor Recreation Economic Collaborative (VOREC). COWI insights are based on input from 117 businesses, nonprofits, municipalities, and state agencies through surveys, interviews, convenings of outdoor employers and career navigators, and a training design work group.

Vermont outdoor recreation enterprises are experiencing more frequent and severe climate impacts. Threats include extreme precipitation, flooding, drought, heat, wildfire/smoke events, and greater variability in season length. These impacts disrupt operations, cause financial pressure, and distress employees. They threaten enterprise viability, especially the numerous smaller businesses located in rural communities across the state.

Through strategy, operations, and technical skills, enterprises are activating the climate outdoor workforce to remain agile and resilient. Adaptations include adjusting seasonal product offerings to steady year-round revenue, ensuring customers have consistent access to recreation infrastructure, and bolstering public engagement to support community health, wellness, education, and stewardship. Each climate outdoor job in the COWI inventory prominently delivers on at least one or more resilience or adaptation outcome. Identified skills, knowledge, and agency leads to career advancement and economic security.

Skill gaps were found in human resources, finances, marketing/communications, and technical skills. Systematic workforce challenges are housing, low compensation, and seasonality. These barriers prevent the outdoor recreation industry from optimizing their climate resilience outcomes for enterprises and communities.

Two short-term COWI recommendations include: Creating an industry-led professional development training for staff with responsibilities in hiring, training and managing staff; and, sharing climate workforce materials to Vermont education institutions for incorporation into existing programs. Service learning career pathways materials are recommended to increase industry workforce recruitment and retention, collectively strengthening "seasonal to salary" career pathways. Long-term recommendations for capacity and program investment in industry, education, and service learning systems will further strengthen climate resilience in Vermont's outdoor sector, communities, and landscape.

# Section 1: Climate Outdoors Workforce Initiative (COWI) Introduction

## A. The Need for COWI

### 1. The Outdoor Industry is Addressing Climate Change

The Vermont outdoor industry has long acknowledged that the climate is changing and has been adapting over time. The state is already experiencing heavier rain events year-round, shorter winters, and more extreme storms - involving flooding, ice, and power outages - plus increased wildfire smoke, heat, and drought cycles. In December 2025, VOBA published the Resilient Outdoor Assessment and Management to help the industry prepare to strengthen operations, protect assets, attract employees, and keep Vermont's outdoor economy thriving.

### 2. The State of Vermont is Addressing Climate Change

The State has also taken action. In 2020, the Legislature passed the Global Warming Solutions Act (GWSA, Act 153), creating legally binding emission reduction requirements. The Act requires VT to reduce greenhouse gas pollution to 26% below 2005 levels by 2025. Emissions will need to be 40% below 1990 levels by 2030 and 80% below by 2050.

### 3. Vermont Climate Action Plan

The GWSA established the 23-member Vermont Climate Council, representing public and private sectors, which published the state's first Climate Action Plan (CAP) in 2021. Following a CAP recommendation, Governor Phil Scott established the Climate Action Office within the Agency of Natural Resources. The updated CAP in 2025 guides the Legislature in setting policy for four years in support of climate change solutions for Vermonters and the landscape.

A key CAP strategy is to "build and encourage climate adaptation and resilience of Vermont communities and natural systems." Cross-Cutting Pathways is an area of climate action that provides a comprehensive approach by supporting emissions reductions as well as resilience and adaptation efforts. One Pathway calls for implementing a Climate-Ready Workforce Initiative which targets "outreach, training, support, and service-learning systems for existing Vermont residents to enter and stay in careers that support climate action, including farming and forestry, conservation, clean energy, weatherization, outdoor recreation, and resilience and adaptation careers."

### 4. Registered Apprenticeship Programs

The CAP aligns with the strategy to train workers in service of the collective U.S. Climate Alliance (USCA) goal of 1 million new registered apprentices across 24 states by 2035. The USCA is a bipartisan coalition of governors. Registered Apprenticeship Programs registered with the U.S. Department of Labor or federally approved State Apprenticeship Agencies along with quality pre-apprenticeships, are proven workforce training models that empower workers to earn while they learn in key climate-ready occupations and industries and offer a valuable career pathway in many climate-ready fields.

## 5. Vermont Resilience Implementation Strategy

The Climate Outdoors Workforce Initiative (COWI) is advancing a priority action of Vermont's Resilience Implementation Strategy. Released in September 2025 by Governor Phil Scott and State Treasurer Mike Pieciak, the Strategy builds on the work by the state government to adapt to a changing climate, evaluate and address gaps in current services, and identify strategic funding priorities to accelerate implementation.

The Economic and Environmental Sustainability component identifies Opportunity 9 to “support Vermont businesses, especially small and underserved businesses, in building capacity to prepare for, respond to, and recover from climate-driven disasters, while also advancing economic diversification and adoption of climate-resilient business practices.” Priority action 9B specifies VOBA's collaboration with the Climate Action Office and Vermont Department of Labor to define climate-resilient jobs, skills, and career pathways within the outdoor economy.

## 6. Resilience and Related Terms

The COWI project is focused on resilience outcomes. The Agency of Natural Resources Climate Action Office acknowledges that the terms adaptation and resilience are often used together, but a distinction is helpful for COWI purposes.

### RESILIENCE

**Resilience is a state of readiness, enabling our communities, infrastructure, and ecosystems to better face and recover from climate risks.**

### ADAPTATION

**Adaptation is the specific actions taken to reduce the physical risks of climate change to our natural and built environments.**

Many outdoor industry jobs provide climate and sustainability benefits. Nature- and stewardship- based solutions can counter recreation-related climate change, biodiversity loss, and disaster risk. However, jobs that are focused on mitigation or circularity are outside the scope of the COWI.

**Mitigation:** Vermont's Global Warming Solutions Act defines mitigation as the reduction of greenhouse gas emissions caused by humans and the preservation and enhancement of natural systems to sequester and store carbon.

**Circularity:** The Ellen MacArthur Foundation identifies this restorative and regenerative industrial system as eliminating waste and pollution, circulating products and materials at their highest value, and regenerating nature.

## 7. Move Forward Together Vermont (MFTV)

MFTV is the State's strategic vision for strengthening Vermont's outdoor recreation economy for the next 5 years (2025 - 2029). The Vermont Outdoor Recreation Economic Collaborative (VOREC) supports statewide partners working at the local, regional, and statewide levels to take actions in the areas of Stewardship, Wellness, and Economic Development that lead to healthy and vibrant communities. Equity and Climate Resilience are shared goals to be addressed by all actions taken in support of the plan.

**As a statewide partner working with VOREC, VOBA's workplan is tied to the priority actions of MFTV, specifying climate resilience goals that include:**

1. Leverage data and research on climate impacts and solutions for the outdoor sector to inform business decisions.
2. Support the adaptation and sustainability of outdoor businesses with climate risk operations, especially those in or serving winter sport destinations.
3. Help businesses promote climate resilience within the industry and market to an environmentally-conscious customer base.

## **8. Other State of Vermont Frameworks and Prioritization**

Vermont's Office of Workforce Strategy and Development and the State Workforce Development Board identified 2026 Strategic Goals for the public workforce development system to guide the work of state workforce agencies and partner organizations. This includes developing sector-specific strategies to increase the supply of workers for the workforce in Vermont's five sectors with the greatest need including construction and trades, manufacturing, leisure and hospitality, and professional and business services.

### **Vermont Forest Future (VFF) Strategic Roadmap**

As mandated in Act 183, the Department of Forests, Parks and Recreation and a Steering Committee developed a 10-year strategic plan to assess the current state of Vermont's forest economy and identify opportunities to strengthen, modernize, promote, and protect the forest products sector. The roadmap contains 30 recommended actions that require both a multi-stakeholder approach and a long-term action plan. Strategies and actions with linkages include: Connecting recreational and other forest users with the forest products sector; and, Promoting the forest industry's critical role as an ecosystem manager.

## **9. Equity and Access**

Vermont's outdoor sector has widely acknowledged inequitable access to outdoor participation, education, training, and employment of under-represented communities. The Vermont Climate Council adopted Guiding Principles for a Just Transition as a CAP appendix. The principles acknowledge that low-income communities, Indigenous peoples, and Black and other communities of color are among those who are particularly vulnerable to the impacts of climate change. VOBA's commitment to expanding opportunities so that all people feel welcome in Vermont's outdoors ensures that COWI focuses on dismantling historical barriers and enables opportunities for jobs that advance adaptation and resilience in our communities.

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## **B. Project Overview**

The Climate Outdoors Workforce Initiative (COWI) focuses on understanding and strengthening the knowledge, skills, and capacity of Vermont's current outdoor professionals while attracting new workers into careers essential to climate adaptation and resilience.

## 1. Project Goals

- Align State of Vermont and outdoor economy frameworks and workforce strategies to support climate action.
- Assess occupations and skills necessary to build a climate resilient workforce.
- Provide professional development to current and prospective professionals to enable resilience knowledge in their jobs, preparing enterprises to adapt to climate change.
- Frame career pathways with climate in mind as a way to attract and retain employees.

## 2. Job Definitions

Climate jobs are commonly understood to include roles that reduce greenhouse gas emissions (mitigation jobs) which leaves out workforce adaptation and resilience outcomes vital for communities addressing near-term climate impacts. A COWI objective is to define climate jobs through the lens of resilience and adaptation within Vermont’s sizable outdoor industry, so that the State and industry partners can support the workforce to take swift climate action.

Climate-Resilient Jobs: A climate-resilient workforce is skilled in occupations that support communities and landscapes to better adapt to a changing climate, prepare for and withstand climate impacts, and more efficiently/effectively respond to and recover from climate hazards.

Outdoor Jobs: COWI considers outdoor industry (“outdoor”) jobs within the Vermont outdoor recreation economy as defined by VOREC: The outdoor recreation economy in Vermont drives economic growth and enhances community well-being resulting from recreation outdoors. Partnerships among local and state government, businesses, and organizations play a vital role in maintaining the connections between three key elements.

- I. People: Individuals who recreate outdoors, operate businesses, and contribute to the planning and stewardship of Vermont’s outdoor spaces. Their needs include reliable information, support, accessibility, safety, affordability, and a sense of belonging. Meeting these needs involves developing best practices, creating inclusive outdoor opportunities, promoting active lifestyles, and maintaining infrastructure and services.
- II. Place: The natural landscape, built environment, and community services that enable outdoor recreation. This includes forests, waterways, trails, parks, and community spaces. Maintaining access to these places and ensuring a healthy environment requires conservation, infrastructure investments, and thoughtful planning.
- III. Commerce: The economic activity that’s fueled by outdoor recreation, ranging from tourism and hospitality to the production and sale of outdoor gear. A strong recreation economy depends on thriving businesses, sustainable tourism, and communities that support outdoor-driven investments.

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**Vermont Climate-Resilient Outdoor Jobs: VOBA defines climate-resilient outdoor jobs (“climate outdoor jobs”) as all outdoor industry occupations with the skills, knowledge, and agency to help enterprises and communities address climate adaptation and resilience.**

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## **C. Project Collaborators**

### **1. Vermont Outdoor Business Alliance**

The Vermont Outdoor Business Alliance (VOBA) is a state-wide organization established in 2018 to educate Vermonters on outdoor recreation and businesses on business development, collaboration initiatives, and outdoor recreation policy. VOBA and its 155 members strengthen Vermont's outdoor economy through networking & learning, business development & technical assistance, research & branding, workforce development, and advocacy. VOBA supports investment in the state's natural and recreation resources and equitable access for all in the outdoors.

### **2. Agency of Natural Resources Climate Action Office**

The Vermont Climate Action Office (CAO) coordinates and provides significant expertise and capacity on state-led climate initiatives, as well as the monitoring, assessment and tracking of climate adaptation, mitigation, and resilience activities. The CAO is a division within the Agency of Natural Resources (ANR) Secretary's Office and is focused on three core areas: 1) Climate Program Coordination; 2) Support of implementation of the Global Warming Solutions Act (GWSA); and 3) Community and Stakeholder Engagement.

### **3. Vermont Department of Labor**

The Vermont Department of Labor (DOL) is a state government agency responsible for advancing workforce and labor initiatives that strengthen Vermont's economy and improve the lives of working Vermonters. Guided by its purpose—to improve the lives of working Vermonters—and grounded in principles of compassionate service, operational excellence, professionalism, integrity, and a commitment to equity, access, and belonging, the Department delivers essential, coordinated services to individuals and businesses. VDOL administers workforce development programs, labor market information, unemployment insurance, workers' compensation, and Registered Apprenticeships, supporting career development and helping build and sustain a skilled workforce. The Department promotes economic growth, enhances job quality and safety, and ensures all Vermonters have access to meaningful employment and advancement opportunities.

### **4. Vermont Office of Workforce Strategy and Development**

The Vermont Office of Workforce Strategy and Development (OWSD) is charged with advising the Governor on policies and practices that grow and strengthen Vermont's workforce. The Office coordinates statewide workforce initiatives, oversees the State Workforce Development Board, convenes stakeholders across sectors, and develops and implements comprehensive strategies to address current and future workforce needs.

### **5. Vermont Outdoor Recreation Economic Collaborative**

Vermont Outdoor Recreation Economic Collaborative (VOREC) is a state program administered by the Vermont Department of Forests, Parks and Recreation (FPR) in partnership with the Agency of Commerce and Community Development (ACCD). Serving as a central hub for a broad network of outdoor recreation economy stakeholders VOREC uses data, technical assistance, policy, funding and storytelling to strengthen the connections between Vermont's outdoor recreation resources.

## Section 2: Insights from Key Sources

The 2026 Vermont Outdoor Business Alliance Workforce Survey (COWI survey) and related interviews were the primary source of information. Data from recent statewide surveys of a similar audience and COWI convenings was used to inform and validate project learnings. In total, the project team reached:

- 70 survey responses
- 18 interviews for additional context
- 22 attendees from two convenings

These information gathering tools are directionally helpful for program design but they are not necessarily statistically representative of Vermont’s outdoor industry. Results should be considered indicative of the participants. Accompanying quotes are illustrative in nature.

### A. Climate Outdoor Workforce Landscape Insights



**Climate change is reshaping the outdoor economy faster than enterprises can keep up.** 67% respondents are already experiencing climate disruptions or expect them soon from unpredictable seasons, flooding, and extreme weather.



**Climate change is costing enterprises money, and support lags behind.** 56% of enterprises are already feeling the financial strain in revenue, operational disruptions, and rising costs. This creates a growing gap between climate impact and response.



**Enterprises need practical skills to stay resilient - but the training offerings aren’t aligned.** 53% seek technical operations skills, alongside high demand for Human Resources, Finance, and Marketing. Available training rarely matches small operations needs.



**Workforce system challenges include recruitment and retention.** Barriers identified by hiring employers include 58% lacking qualified applicants. There is clear demand for more applied learning, service learning, and structured career pathways.



**People want to take action but barriers get in the way.** 62% are seeking practical, role-specific, and easy to apply learning. Overcoming a “say-do gap” is not just about time or resources - it is also influenced by how enterprises view climate change.



**Beyond economic outcomes, a climate-resilient outdoor recreation workforce contributes to community resilience.** This supports the ability of local economies, ecosystems, and people to adapt to climate change and sustain recreation over time.

## B. Info Gathering Design and Distribution

### 1. COWI Survey

The COWI project team developed a survey to gather quantitative and qualitative information. Questions covered enterprise demographics, climate impacts, climate adaptation strategies, outdoor jobs, skills and training, challenges, and a general understanding and attitude of climate impacts. Google Forms was used to design and administer the information gathering tool. Project collaborators and industry and state partners distributed the survey across Vermont including businesses, organizations, municipalities, and state agencies.

### 2. Supplementary Interviews

The project team conducted interviews across all nine primary segments ([see Nine Core Categories](#)). Interviews were 20-45 minutes long and held remotely. All interview subjects' answers were incorporated into the survey tool to quantify their data. Other questions covered hiring practices, career pathways, and relevant topics based on the subject.

### 3. COWI Convenings

After the initial analysis was completed, the project team held two virtual sessions to validate findings. These 90-minute group meetings included COWI project learnings, breakout discussions, and feedback opportunities. Convenings were divided into:

- Employers: Business leaders, human resources, and professionals
- Career Navigators: Education institutions, career counselors, talent recruiters, and workforce development service providers

### 4. Who Participated?

Participants represent a variety of categories, sizes, and locations through the state.

### 5. Enterprise Location Survey Results

*Number of respondents and the percentage of the total by location according to VT County.*

County	Percentage of Respondents	Count of Respondents
Chittenden	25.0%	15
Lamoille	15.0%	9
Orleans	11.7%	7
Washington	15.0%	9
Rutland	11.7%	7
Windham	8.3%	5
Windsor	8.3%	5
Caledonia	3.3%	2
Orange	1.7%	1

## 6. Nine Core Categories

The COWI used nine category definitions for the outdoor industry that were developed by VOBA as part of VOREC's Move Forward Together Vermont process.

### **I. Manufacturers:** 13.3% Survey Respondents | 16.7% Interviews

Designers and producers of apparel, equipment, food, technology, and other tools intended to facilitate participation in and enjoyment of outdoor recreation activity.

### **II. Retailers/Outfitters:** 11.2% Survey Respondents | 16.7% Interviews

Physical and online shops featuring apparel, equipment, food, technology, and other tools to rent or buy are intended to facilitate participation in and enjoyment of outdoor recreation activity.

### **III. Resorts/Outdoor Centers:** 12.2% Survey Respondents | 5.6% Interviews

Destinations offering access to outdoor activities and possibly other amenities on-site, either seasonally or year-round. These range in size and ownership model (e.g., publicly owned, non-profit, for-profit - publicly or privately held).

### **IV. Networks:** 16.3% Survey Respondents | 5.6% Interviews

Groups affiliated by a common asset, interest, or initiative related to outdoor recreation.

### **V. Trail Construction/Maintenance:** 8.2% Survey Respondents | 11.1% Interviews

Enterprises that specialize in construction and maintenance of single- or multi-use trails in a variety of environments (e.g., urban, suburban, rural, forest, rivers).

### **VI. Guide Services:** 7.1% Survey Respondents | 16.7% Interviews

Experienced professionals offering organized opportunities to clients to experience the outdoors.

### **VII. Education and Health Services (including Natural Resource Management & Planning):** 9.2% Survey Respondents | 11.1% Interviews

Institutional, non-profit, and private service providers that support individual development and empower participation in outdoor recreation as an employee, volunteer, and/or participant.

### **VIII. Marketing/Media/Sales/Events:** 15.3% Survey Respondents | 11.1% Interviews

Promoters of the outdoor industry (e.g., products, places, people, participation) use a variety of communication forms and marketing mediums.

### **IX. Lodging/Hospitality/Campgrounds (private):** 7.1% Survey Respondents | 5.6% Interviews

Businesses that provide amenities that enable or enhance the outdoor recreation experience.

## 7. Frequently Mentioned Roles

- Owners / Founders / CEOs
- Executive Directors
- Operations / Facilities / Maintenance Leads
- Trail Managers / Field Leads
- Finance / Revenue roles

## 8. Enterprise Size Survey Results

*Number of respondents and the percentage of the total by location according to VT County.*

Number of Employees	Percentage of Respondents	Count of Respondents
1-3	36.2%	25
3-19	21.7%	15
20-60	21.7%	15
100+	20.3%	14

## 9. Enterprise Size

- 1-3 Employees: notably the largest size category and vast majority of Vermont businesses: regulation and market shifts most common; high uncertainty/confusion and competing threats
  - 3+ Employees: shifting seasons rank highest; leadership skill use and training demand increases with the number of employees
  - 20-60 Employees: high for shifting seasons & variability; strong demand for climate-informed financial and operational resilience planning, climate-smart marketing
  - 100+ Employees: rank high for shifting seasons & variability and climate-related regulation; focus on systems and compliance
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## C. Climate Impact

Climate change is reshaping the outdoor economy faster than enterprises can keep up. 67% of respondents are already experiencing climate disruptions or expect them soon from unpredictable seasons, flooding, and extreme weather.

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**Vermont is no longer a “climate haven” - the state’s mountainous regions in particular are at high risk from warming temperatures and extreme rain.**

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## 1. Climate Scenario Survey Results

*Displaying percentage of respondents who anticipate a climate scenario in the next 1-3 years.*

Climate Scenario	Percentage of Respondents
Shifting Seasons and Variability	32.9%
Flooding and Extreme Precipitation	24.3%
Climate-Related Regulation	11.4%
Heat, Smoke, and Air Quality	10.0%
Climate-Driven Market Shifts	8.6%
Ecosystem and Health Impacts	2.9%
Drought and Water Scarcity	1.4%

Two-thirds of Vermont outdoor recreation enterprises expect short-term significant climate impacts. Respondents confirmed they *already* experience flooding and intense rain. Extreme precipitation has caused trail washouts, road damage, riverbank instability, infrastructure strain, perception- and safety-based trip cancellations, and increased maintenance. “Climate whiplash” or intense variability is also real: there can be both below average and above average precipitation in the same year or in different state locations. Stressors are multiple, compounding, and cascading. COWI survey write-in scenarios referenced various combinations of higher ranking scenarios. Other responses mentioned water quality degradation, tick and vector borne illnesses, prolonged drought, declining biodiversity, and political and economic factors exacerbating impacts.

In the years after Tropical Storm Irene in 2012, the state’s inland location away from rising sea levels and relatively cool climate led to the national perception of Vermont as a “[climate haven](#).” However, the significant number of federal disaster declarations in the state since 2023 augmented by increasing wildfire smoke impacts are affecting this positive reputation. The [NOAA State Climate Summary](#) reports that state temperatures have increased three degrees in the last 125 years. Annual average precipitation (rain, snow, sleet, and hail) has also increased by nearly six inches in the last 50 years. The largest precipitation increases occur in mountainous regions-where outdoor recreation dominates-and excess rainfall is funnelled by the topography.

## 2. Organization Type Impacts | Category Patterns: Common Impact, Risk, Skill/Training Demand

**Lodging/Resorts:** Shifting seasons and variability, revenue volatility, planning challenges, operational resilience, marketing and communications

**Manufacturers:** Shifting seasons and variability, climate-related regulation, revenue volatility, increased operating costs, supply chain disruption, financial forecasting, operational resilience

**Networks:** Flooding and extreme precipitation, heat and air quality, operational disruption, workforce impacts, foundational climate knowledge, workforce safety and human resources, leadership and staff activation

**Retailers:** Risk is economic over physical due to season variability, revenue volatility, financial forecasting, technical field skills (service diversification), and foundational climate knowledge

Additional context in interviews and from convenings was invaluable information. Climate scenarios varied by type of organization, however impacts were described as broader than expected. Some enterprises experience benefits from climate change - such as longer warm-weather seasons. Others are impacted by floods which cause damage that leads to extended closures beyond the timeframe of the climate event. Shorter winters and snow variability affect resorts along with the wider network of travel and tourism businesses including lodging and retailers within resort-anchored communities.

Beyond snow sports destinations, other enterprises naturally have different risks and impacts.

- Heat and workforce exposure risks particularly affect trail crews, conservation corps, field guides, and grounds and maintenance staff.
  - Manufacturers anticipate climate-related regulation and supply chain disruptions as major concerns.
  - Networks expect heat and air quality concerns alongside prominent themes of flooding and extreme precipitation.
  - Hospitality and retail businesses mostly see their risk as financial rather than physical due to seasonal variability, however significant loss of buildings and inventory has been documented in recent years. Hospitality businesses in Ludlow - Hardwick's Inn by the River, Ludlow's Homestyle Hotel, and Timber Inn, and retail locations - Village Sports Shop, Lyndonville and Trailside Shop, East Burke - were closed in '23-'25 from flooding.
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### **3. In Their Own Words: Climate Impacts & Capacity Risk**

#### **Snow Season Instability, Floods & Droughts**

*"No snow, no business ... [Resorts are] the lifeblood of many towns, otherwise people would be passing through."* - Anastasia Slough, General Manager, Sports Odyssey Inc.

*"Increasing frequency and severity of precipitation will damage legacy trails not constructed to modern climate-resilient guidelines."*

- Nick Bennette, Executive Director, Vermont Mountain Bike Association

*"People may not think low water levels are such a huge issue, but all our infrastructure is built for 'normal levels'."* - Michael Brown, Director of Recreation, City of Newport

#### **Revenue Volatility**

*"Shifting seasons and weather patterns will not only change the seasonal usage... but will also affect when (if) users come to our communities."* - Kim Stinson, Executive Director, Ridgeline Outdoor Collective

*"Altogether, these impacts increase operational risk, raise costs, and make revenue more volatile..."* - Jenifer Oliphant, General Manager, The Wildflower Inn

*"Huge expense increase to 'make' skiing happen..."* - Ollie Burruss, Program Director, Craftsbury Outdoor Center

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## D. Capacity Risk

Climate change is costing enterprises money - and support systems lag behind. 56% of enterprises are already feeling the financial strain in revenue, operational disruptions, and rising costs. This creates a growing gap between climate impact and response. Climate impacts are putting a strain on operational capacity from multiple angles including the dominant theme of financial risk as well as real physical risk.

### 1. Enterprise Impact Survey Results

*Displaying percentage of respondents with specific impacts from identified climate scenarios.*

Enterprise Impact Category	Percentage of Respondents
Revenue Volatility	22.9%
Operational Disruption	17.1%
Increased Operating Costs	15.7%
Planning Challenges	11.4%
Infrastructure Risk	8.6%
Workforce Impacts	7.1%

Pressure on both revenue and cost comes from multiple areas related to climate impacts.

- Over half reported climate-driven cost pressure from revenue volatility, operations disruptions, and increased operating costs.
- Respondents reported higher energy costs, increased insurance pressure, more maintenance labor, cash flow unpredictability, and strain on small teams.
- Heat and air quality impacts - greatest on field roles - leads to reduced or shifted work hours, modified program design, and increased need for safety monitoring.

Beyond physical damage and loss, perception and unpredictability drive additional economic impacts. Outdoor recreation participation in Vermont relies heavily on out-of-state visitors, who may be less informed about timely and accurate conditions. It is not uncommon that visitors cancel trips throughout the state from newsworthy climate events such as regional and localized flooding, regardless of the scale. Marketing and long term planning becomes more challenging when there is reduced confidence in seasonal promotions.

According to the [Bureau of Economic Analysis](#), snow sports continue to be the top contributor to the state GDP, therefore winter weather-dependent regions are more vulnerable to fluctuations. Enterprises reported lower economic activity, and fewer advance bookings from shorter winter seasons, unpredictable snow cover, increased snowmaking costs, and longer shoulder seasons.

## 2. Training Demand

Enterprises need practical skills to stay resilient - but training offerings aren't aligned. 53% seek technical operations skills alongside high demand for Human Resources, Finance, and Marketing. Available training is reported to not match the needs of small operations.

## 3. Analysis Process

Insights were presented at the two COWI Convenings for employers and career navigators, where learnings were validated. Two dimensions for functions and skills were analyzed:

- Ability: current capacity to respond to climate impacts.
- Demand: direct (not inferred) requests for training.

## 4. Function Ability vs. Demand Survey Results

*Percentage of respondents identifying lack of ability and training demand by functional area.*

Functional Category	Percentage of Respondents: Lacking Ability	Percentage of Respondents: Demanding Training
HR and Legal	32.6%	27.1%
IT and Technology	26.1%	25.7%
Finance and Accounting	23.9%	17.1%
Operations and Facilities	10.9%	25.7%
Marketing and Sales	6.5%	14.3%
Customer Service	0.0%	0.0%

## 5. Functional & Skill Insights

- Human Resources is independently elevated going forward as legal issues were rarely mentioned in all the research.
- Over one-third of gaps are in operations, including technical skills and workforce safety.
- Notable interest in financial planning and funding, marketing and communications
- Little to no demand for climate theory, policy, advocacy, nor sustainability certifications.

Convening attendees identified topics in marketing, finance, and people management as being important yet different from the recreation-specific expertise that typically attracts workers. Furthermore, most businesses are small, employing significantly less than 20 people, which leads to many functional areas becoming "one of a worker's many responsibilities." It's not uncommon for critical functions like human resources and finance to be secondary responsibilities and not specialized roles - possibly connected to the lack of ability noted.

## 6. Prioritization & Key Skills

The biggest gaps are currently in business functions, not technical operations skills. Human Resources, Finance, and IT show the largest mismatch between low ability and high demand, while Operations and Marketing require continued upskilling. Possible emerging or undefined needs are shifting climate impacts and technology.

Priority gaps and upskilling opportunities, both of which are high demand areas, are listed below with key skills for each and an illustrative quote.

- Human Resources: Low Ability | High Demand | Priority Gap
- Finance: Low Ability | High Demand | Priority Gap
- IT & Technology: Low Ability | High Demand | Monitor
- Ops & Facilities: High Ability | High Demand | Upskilling Opportunity
- Marketing & Communications: High Ability | High Demand | Upskilling Opportunity
- Customer Service: High Ability | Low Demand | Strength to Leverage

## 7. Priority Gaps: High Demand & Low Ability

Human Resources:

- Key Skill Needs: Recruiting & retention, Workforce safety

*"Staffing becomes more complex when demand no longer follows predictable seasonal patterns, increasing labor costs and making scheduling less efficient."* - Jennifer Oliphant, General Manager, Wildflower Inn

Finance:

- Key Skill Needs: Funding & grants, Financial forecasting

*"We need to understand cashflow and capital expenditures related to changing climate and how it relates to the long term vision of the resort."* - Eric Davis, Group Sales Manager, Bolton Valley Resort

## 8. Upskilling Opportunities: High Demand & High Ability

Operations & Facilities:

- Key Skill Needs: Systems resilience, Technical field skills ([see Training Inventory below](#))

*"Our team has diverse backgrounds in conservation science and ecological restoration and we are also always looking to learn more about invasive species management and flood mitigation and resilience work."* - Leah Mital, Vermont Youth Conservation Corps

Marketing & Communications:

- Key Skill Needs: Climate storytelling, Customer comms, General climate education

*"Severe flooding can cause direct impact to trails/roads and also perceived impact from visitors. People hear there is flooding or damage somewhere in Vermont and cancel their trip - even though our area isn't impacted."* - Georgia Gould, Executive Director, Kingdom Trails

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## 9. Lower Priority Areas: Monitor for the Future

IT & Technology shows low ability and high training demand. Current needs are less about advanced technical systems and more about foundational business functions (Human Resources, Finance). Artificial Intelligence (AI) did not come up in surveys and interviews but it was a part of Convening discussions. The rapid rise, functionality, and unfolding technological transformation is anticipated to reshape roles in outdoor recreation.

## 10. Customer Service: Harness Strengths

Low need for additional training and no respondents identifying this function as lacking ability make it low priority. Outdoor businesses display customer service as a primary strength.

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## E. Training Sources

A range of professional development opportunities exist, including industry-led, education-led, and service learning. Overall, the training gap is not due to a lack of content, rather a lack of alignment. Outdoor businesses need accessible, applied training in business-critical functions, delivered in formats that match the realities of small teams and climate-driven uncertainty.



EDUCATION  
INVENTORIES

[Find Professional Development Inventories on VOBA's outdoor careers webpage: vermontoutdoorbusinessalliance.org](https://vermontoutdoorbusinessalliance.org)

## 1. Vermont Outdoor Business Survey (2024): Relevant Workforce Learnings

The Vermont Outdoor Business Survey was completed in 2024 as part of Move Forward Together Vermont. The survey was developed and distributed by VOREC in partnership with VOBA and the Vermont Agency of Commerce and Community Development. The survey respondent total (67) is similar to the COWI survey size. The same categories were used in both surveys ([see Nine Categories](#)) so data points can be compared. This similar data set is also limited and not statistically representative.

**Employee Hiring & Benefits:** Of the top challenges/barriers identified by survey respondents when hiring employees, skills ranked high with the 2nd and 4th items:

- 58% lack of qualified applicants
- 50% skillset necessary for position(s)

**Professional Development Programs:** Of the respondents with employees, 59% offered training programs, with these most common:

- 64% onboarding training
- 61% technical skills
- 54% reimbursement for external trainings, conferences, and continuing education programs

**Professional Development Outcomes:** Benefits respondents observed from training:

- 71% increased employee engagement
- 61% consistent work processes
- 54% reduced skill gaps

## F. Specific Skills: Technical Training Inventory

Within outdoor recreation, there is ample need for technical skills. Technical training opportunities are more developed than business-focused training, but still include notable barriers. Below are employer-demanded technical skills areas and relevant roles, Professional Development (PD) available at this time, and barriers to access. ([See skills within roles in Outdoor Climate jobs.](#))

### **First Aid** (Wilderness First Responder, Wilderness First Aid, CPR/AED)

- Roles: Conservation Technicians, Guides/Outdoor Educators, Trail Professionals
- PD: American Heart Association, Service Learning, Stonehearth Opening Learning
- Barriers: Cost, Individual Access

### **Trail Building/Maintenance**

- Roles: Conservation Technicians, Facilities Directors, Foresters, Parks and Recreation Managers, Trail Professionals, Volunteer Coordinators
- PD: VOBA, Vermont Trails and Greenways Council, Service Learning, Appalachian Mountain Club Trail Skills College (NH)
- Barriers: Geographic Availability, Cost

### **Chainsaw Skills** (Game of Logging)

- Roles: Trail Professionals, Conservation Technicians, Foresters, Parks and Recreation Managers, Facilities Directors, Volunteer Coordinators
- PD: VOBA, Northeast Woodland Training, Service Learning, Agency of Natural Resources-Climate Action Office
- Barriers: Cost, Time

### **Emergency Response** (Incident Command System 100, 200)

- Roles: Parks/Recreation Managers, Volunteer Coordinators, Guides/Outdoor Educators
- PD: National Incident Management System-Federal Emergency Management, State Police Search and Rescue

### **GIS/Mapping**

- Roles: Trail Professionals, Conservation Technicians, Foresters, Parks & Rec Managers, Facilities Directors
- PD: Agency of Digital Services-VT Center for Geographic Information
- Barriers: Self-Guided, Visibility

### **Guiding** (backcountry skiing, ice climbing, watersports, fly fishing, hunting)

- Roles: Guides and Outdoor Educators
- PD: Vermont State University-Outdoor Education and Leadership, Vermont Agency of Natural Resources-Fish & Wildlife Department, Orvis, University of Vermont
- Barriers: Cost, Time, Equipment, Visibility

### **Environmental Education**

- Roles: Guides and Outdoor Educators
- PD: Agency of Natural Resources-Fish & Wildlife Department, Agency of Natural Resources-Department of Environmental Conservation, Upper Valley Teaching Place Collaborative, Audubon Vermont
- Barriers: Geographic Availability, Visibility

### **Volunteer Coordination**

- Roles: Coordinators, Trail Pros, Parks & Rec Managers, Guides/Outdoor Educators
- PD: Vermont State University-Outdoor Education and Leadership, Common Good
- Barriers: Time, Cost, Visibility

## G. System Challenges

Workforce system challenges include recruitment and retention. Barriers identified by hiring employers include 58% lacking qualified applicants. There is clear demand for more applied learning, service learning, and structured career pathways. There's a sentiment that careers in the outdoor industry aren't "real careers" or "professional." Feedback from the survey, interviews, and convenings leads to the hypothesis that this is due to limited professional development opportunities, the prominence of seasonal and part-time roles, limited pay, and the lack of benefits. Lack of affordable housing is another barrier that was regularly mentioned.

Beyond training opportunities, there is strong interest in other solutions to workforce system challenges. Solutions are especially needed to help bridge the "seasonal to salary" gap for workers to transition from seasonal roles to year-round employment. Developing clear career pathways helps potential employees understand how they can join or progress in the outdoor recreation sector. Interest in applied learning includes on-the-job training, field-based mentorship, and skilled trades pipelines.

### 1. Quality Jobs and Social Determinants of Work

Two overlapping frameworks are helpful lenses for understanding the systemic challenges that are not unique to Vermont or the outdoor recreation industry.

Employers with jobs that are considered "quality jobs" are able to attract more qualified candidates. The U.S. Chamber of Commerce identifies eight drivers of job quality that impact the overall employment experience:

- Recruitment, Hiring
- Benefits
- Diversity, Equity, Inclusion, & Accessibility (DEIA)
- Empowerment & Representation
- Job Security & Working Conditions
- Organizational Culture
- Pay
- Skills & Career Advancement

The Social Determinants of Work project originated in Ohio but its learnings are now applied more broadly. This initiative strives to strategically mitigate barriers, encourage employer practice shifts, and advocate for policy changes in these areas:

- Job Flexibility
- Sustained Education
- Healthcare
- Home and Community Health
- Childcare
- Broadband Access
- Transportation
- Access to Justice

There are valuable takeaways in other recent VOBA surveys beyond the COWI project. A smaller data set of 24 responses, about one-third of the COWI survey, was collected in January 2025. The audience of VOBA members overlaps with COWI respondents.

## 2. Most In-Demand Workforce Systems for Climate Resiliency

Percentage of respondents identifying specific workforce development system needs in outdoor recreation.

<b>Workforce Development System</b>	<b>Percentage of Respondents</b>
Internship, (Pre) Apprenticeship and Service Learning	16%
Recruitment and Retention Tools for Employers	16%
Industry-led Professional Development and Training	14%
Partnerships to Address Under-Representation	14%
Inventory of Education Opportunities*	12%
Inventory of Outdoor Employers, Jobs, and Skill Sets	10%
Resources to Market Jobs and Outdoor Careers	10%
Inventory of Education and Professional Development in Post-secondary and Adult Programs*	6%
Inventory of Career Navigators	2%

\*Note that inventories have been established as part of this project, available online through [vermontoutdoorbusinessalliance.org](http://vermontoutdoorbusinessalliance.org).

## 3. In Their Own Words: System Solutions

### Apprenticeships

*“If I could wave a magic wand, the most valuable thing would be paid apprenticeships where people get a year’s work and get training too.”* - Nick Bennette, Executive Director, Vermont Mountain Bike Association

### Recruitment and Retention

*“Motivation and low turnover come from people seeing the impact of their work and enjoying being outside.”* - Alec Ellsworth, Parks Director, Montpelier Parks Department

### Career Pathways and Exposure

*“We need more people to be exposed to jobs that require physical effort, and the benefits and satisfaction of doing that work, including financial, mental health, staying active, and chances to learn and grow.”* - Linda Bailey, Co-Owner, Holland’s Bloom

## H. Service Learning: A Critical Systems Solution

COWI research highlighted service learning as a key component of the workforce development system for several of the identified climate outdoor jobs. Service learning, in the context of the outdoor recreation economy, is a type of employment focused on delivering a public benefit, learning critical durable skills, fostering employee professional growth, and prioritizing the individual and community over generating profit.

Positive outcomes to a wide variety of beneficiaries from service learning include:

- Elevates the visibility of outdoor career pathways
- Connects people to the land and fosters a sense of stewardship
- Breaks down barriers for job-seekers to explore new careers and get training
- Serves as a “seasonal to salary” pathway that can provide job-seekers with transferable skills training and experience attractive to hiring managers for full-time roles
- Increases employer capacity to attract and retain a skilled, diverse workforce
- Provides the State and outdoor industry with a system of attracting out-of-state professionals to live and work in Vermont, as well as retaining Vermonters
- Serves as a point of attraction for federal and philanthropic funding to increase capacity towards outdoor recreation initiatives
- Bolsters identified climate outdoor impact outcomes:
  - Businesses and their customers have consistent access to climate-resilient landscapes and recreation infrastructure.
  - Enterprises adapt their seasonal product and services to steady year-round revenue.
  - Enterprises increase public engagement with outdoor recreation to support community health, wellness, education, and stewardship.

**Relevant Jobs** (pathways through or from service learning):

- Community & Recreation Planners
- Conservation Technicians
- Event Planners
- Foresters
- Guides & Outdoor Educators
- Recreation Managers
- Trail Professionals
- Volunteer Coordinators

**Programs:**

- SerVermont (Americorps): Vermont Housing & Conservation Board, Vermont Rural Learning Collaborative
- Vermont Serve Learn Earn: Audubon VT, Vermont Youth Conservation Corps

**Employers:**

- Montpelier Parks Department, Montpelier Youth Conservation Corps
- Green Mountain Club
- Northwoods Stewardship Center
- State of Vermont
- Vermont State Parks
- Vermont Youth Conservation Corps

## I. Readiness to Act

**People want to take action but barriers get in the way.** 62% are seeking practical, role-specific, and easy to apply learning. Overcoming the “say-do gap” is not just about time or resources - it is also influenced by how enterprises view climate change. Understanding the mindset of respondents is important to overcome barriers related to business resilience. Climate change is a complex topic in many regards, and understanding how it is perceived and prioritized is critical context for COWI project communications.

While nearly two-thirds report being ready to act, they do not express urgency or use crisis language. Instead, they frame climate as a practical, operational challenge and favor concrete strategies and workarounds over advocacy or political responses. This mindset points to a clear opportunity: communications and training should focus on applied learning that supports decision-making under uncertainty and enables immediate, practical actions.

## J. The Say-Do Gap and Climate Change

In both mitigation and adaptation/resilience context, it is common that research discovers people “say” they have a strong intention through survey answers, interviews, focus groups etc. However the actual “do” or action - such as a person investing in home heat and energy efficiencies or an organization committing to climate-resilience training - is much lower in reality.

Groups like the Intergovernmental Panel on Climate Change (IPCC) have documented this implementation gap, including their [2022 assessment report on Impacts, Adaptation and Vulnerability](#). Global research company IPSOS recommends their [behavioral-science based MAPPS framework](#) on behavior change to overcome this challenge.

It will be important that training development and roll out factor in the following internal and external aspects:

- Motivation: personal responsibility
- Ability: incorporating new information
- Processing: shifting away from automatic choices
- Physical: structural environment, costs, and availability
- Social: behavior norms

### 1. Attitude and Framing Survey Results

*Percentage of respondents by perspective on climate change.*

Category	Percentage of Respondents
Practical Adaptation	62.9%
Uncertainty and/or Confusion	14.3%
Competing Threats	10.0%
Opportunity-oriented	8.6%
High Urgency	4.3%

Many respondents note capacity as a constraint, whether “it’s just me”, departments of two, or generally “understaffed for over a decade”. The most effective training programs would be time-efficient, directly applicable, and financially accessible. Workforce training can be difficult for the smallest entities to prioritize attending because it essentially means “closing the shop” which translates to lost revenue. Future opportunities could include exploring modular training. The respondents were highly engaged on COWI topics. Four-fifths (82%) who took the survey were open to doing a follow up interview. This is especially notable given capacity constraints we identified above. One hypothesis is that this engagement is because these businesses and organizations have already seen and felt (financially) the impacts of climate change.

## K. Resilience Outcomes

Beyond economic outcomes, a climate-resilient outdoor workforce contributes to community resilience. This supports the ability of local economies, ecosystems, and people to adapt to climate change and sustain recreation over time. The climate resilience and adaptation outcomes that outdoor professionals deliver are varied. Most outcomes can be viewed as:

- Direct: changes within the enterprise itself, or
- Indirect: broader effects on communities, ecosystems, and local economics

Workforce resilience operates across multiple, interconnected levels. At the personal level, it shapes how individuals adapt and respond to change. At the enterprise level, it influences how businesses and organizations plan for and manage climate risk. At the community level, it contributes to broader social, economic, and environmental outcomes. Impacts could include additional areas than what is listed below



### 1. In Their Own Words: Resilience Outcomes

#### Personal Resilience Outcomes

People recover and adapt rapidly with an agility mindset and continuous learning:

*“Cross-training enables more flexibility and consistency—it allows workers to take on multiple roles depending on need.”* - Kate Harvey, BirdieBlue

People maintain emotional regulation and harness positive approaches to mental and physical health: *“The job itself brings joy through people being outside and fulfilling work.”* - Nick Benette, Executive Director, Vermont Mountain Bike Association

People develop and maintain strong relationships: *“These experiences create a sense of connection and ownership.”*- Kate Alberghini, Green Up Day

### **Enterprise Resilience Outcomes**

Enterprises understand their operational risk and adaptation strategies to adapt and remain resilient: *“We’re having to rethink operations just to protect what we already have—it’s less about expansion now.”* - Courtney Cunningham, AWOL/Lark Hotels

Enterprises adapt seasonal product/service offerings to steady year-round revenues: *“All tours have backup plans ... our program design is shifting to higher elevations for a more consistent snowpack.”* - Steve Brownlee, Umiak Outdoor Outfitters

### **Community Resilience Outcomes**

Enterprises and their customers have consistent access to climate-resilient landscapes and recreation infrastructure: *“Resilient trails lead to a resilient community that remains active and does not ‘shutter’ during weather events.”* - Georgia Gould, Executive Director, Kingdom Trail Association

Enterprises bolster public engagement with outdoor recreation to support community health, wellness, education, and stewardship: *“Climate jobs in the outdoor industry raise awareness about the challenges and impacts of climate change ... when we facilitate folks getting outside, we help people understand the importance of protecting our natural environment...”* - Jen Green, Owner, Jen Green Designs

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## Section 3: Climate Outdoor Jobs

Identified climate outdoor jobs were grouped into four categories based on survey and interview analysis, existing workforce models, and what these roles exhibit through operational climate resilience and adaptation outcomes and like skillset themes.

The jobs listed were identified by survey respondents and interviewees and are not comprehensive of the occupations providing outdoor recreation services and products advancing climate adaptation and resiliency measures. Employers at smaller enterprises may use different titles and/or combine responsibilities within roles. Some titles listed are for multiple roles where skillsets are similar and respondents referred to the titles broadly.

When designing career pathways materials or training programming, it would be important to understand the distinctions between these individual roles and their unique skills, competencies, and means by which they deliver resilience and adaptation outcomes.

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**Each climate outdoor job has strong potential to prominently deliver on at least one or more resilience or adaptation outcomes.**

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**Recreation-Adjacent Occupations:** Several adjacent industries overlap with the recreation industry in providing outdoor services and products essential for climate resilience. The natural resources, forestry, agriculture, and transportation sectors include occupations playing key roles such as conservation technicians and foresters, as well as those managing farms and sugarmaker operations and maintaining infrastructure such as roads, bridges, and facilities.

**Job/Wage Data and Limitations:** The job and wage statistics listed below are provided by the State of Vermont [Economic & Labor Market Information \(E&LMI\)](#) Division, which uses the 2022-2032 Long Term Industry Projections and Vermont May 2022 Occupational Employment Statistics (OES) data to project employment levels for over 500 Vermont occupations in 2032.

There are challenges with using the data for industry research. The job titles for the job and wage data rely on 2018 Standard Occupation Classification (SOC) codes as determined by the U.S. Bureau of Labor Statistics and do not necessarily reflect the titles used by Vermont professionals. Where data is provided in relation to each SOC job title, the information includes industry data beyond outdoor recreation, so there is potential variance in reality of data for climate professionals.

Titles and associated data (SOC code, wage, growth, etc.) were matched with the COWI climate outdoor job titles where best fits were identified, or excluded where SOC titles were ambiguous or missing. This is an area for future work by the State of Vermont and outdoor recreation industry to be able to make data-informed decisions regarding industry workforce. This data is intended to establish a snapshot baseline of information for job-seekers, career navigators, employers, policy-makers, and industry organizations to use how they see fit.

## A. Climate Outdoor Jobs by Themes & Resilience Outcomes

The jobs have been listed under the groups in which their impacts were described in COWI research. As discussed above, titles vary and jobs can have multiple key outcomes. In the detailed sections below the graphic, jobs are listed under the theme in which their impact is most prevalent.

### 1. PLANNERS & STRATEGISTS

**Outcome:** Outdoor industry businesses understand their operational risk and pragmatic strategies to adapt and remain resilient.

**Jobs:** Executives/Managers, Facilities Managers, Event Planners, Finance Professionals, Human Resources Managers, Legal/Compliance Professionals, Supply Chain Analysts, Sustainability Specialists, and Community and Recreation Planners

### 2. BUILDERS & TECHNICAL ADAPTERS

**Outcome:** Outdoor industry businesses adapt their seasonal product and service offerings to steady year-round revenue.

**Jobs:** Bike Mechanics, Guides (*see detail under Land & Ecosystem Managers*), Product Designers & Developers, Production Sewists, Snowmakers, Trail Professionals (*see detail under Land & Ecosystem Managers*)

### 3. LAND & ECOSYSTEM MANAGERS

**Outcome:** Outdoor industry businesses and their customers have consistent access to climate-resilient landscapes and recreation infrastructure.

**Jobs:** Parks and Recreation Managers, Trail Professionals

**Recreation-Adjacent Jobs:** Conservation Technicians, Foresters

### 4. COMMUNITY MARKET & ACTIVATORS

**Outcome:** Outdoor industry businesses bolster public engagement with outdoor recreation to support community health, wellness, education, and stewardship.

**Jobs:** Event Planners (*see detail under Planners & Strategists*), Guides and Outdoor educators, Marketing and Communications Professionals, and Volunteer Coordinators.

## B. Planners and Strategists

**Outcome:** Outdoor industry businesses understand their operational risk and pragmatic strategies to adapt and remain resilient.

**Description:** These are jobs that support businesses to understand their operational risk and the strategies they can employ to address that risk. All of these roles exist in other industries and are not inherently climate roles. Only with the right skills, knowledge, agency, and decision making are they climate outdoor jobs.

**Jobs:** Executives and Managers, Event Planners, Facilities Managers, Finance Professionals, Human Resource Managers, Legal/Compliance Professionals, Supply Chain Analysts, Sustainability Specialists, Community and Recreation Planners

### 1. Executives and Managers

- Why it is a climate outdoor job: Some of the most important climate outdoor roles are those of executives and managers. The CEOs, COOs, owners, directors, and managers who steer and lead their companies are those who have the greatest agency to take significant action to address climate scenarios. With a deep understanding of operations and strategy, they can make decisions that empower their employees or contractors with agency to take action and set the course for how their company will function.
- Job Data:
  - SOC 11-1011 | Chief Executives
    - Median Wage: \$79.90/hr.
    - Annual Growth Rate (compound average): -0.2%
  - SOC 11-1021 | General and Operations Managers
    - Median Wage: \$44.85/hr.
    - Annual Growth Rate (compound average): 0.9%
- Skills/Knowledge: Executives and managers rely on strong leadership, interpersonal, operational, and administrative skills gained from a wide variety of professional experiences and education. There are many career paths to serving one of these roles, though common education credentials that set people on this trajectory include a Masters in Business Administration or certifications such as Project Management Professional or Management Professional. A minimum of 5 years experience and a bachelor's degree is common for these roles. Vermont Businesses for Social Responsibility offers business leaders the ClimateReadyVT program to equip them with basic knowledge and skills to navigate their businesses through changing climate risks.
- Employers: Executive teams that include a CEO, COO, CMO, and CFO are most common in large employers with several divisions of the company such as larger ski resorts or gear and apparel manufacturing companies. Directors and managers are more common for larger and medium sized companies. Small companies may only have a sole owner-manager or a handful of managers leading the business, who often have several responsibilities such as HR, marketing, finance, and operations.

## 2. Event Planners

*Additional Themes: Builders & Technicians, Community & Market Activators*

- Why it is a climate outdoor job: Event planners work to remain agile as climate-related weather disruptions increase in frequency and severity. If key infrastructure is damaged or conditions are unsafe, these professionals can develop contingency plans and logistics that allow an event to be changed to an alternative date or location instead of being canceled, preventing potentially large revenue losses and waste. New events can be created in shoulder seasons to stabilize four-season revenue.
- Job Data: SOC 13-1121 | Meeting, Convention, and Event Planners
  - Median Wage: \$27.40/hr.
  - Annual Growth Rate (compounded average): 1.8%
- Skills/Knowledge: Creative Problem-Solving, Logistics Coordination, Organization, Attention to Detail, Communications, Relationship Building/Networking, Project Management, Budget Management, Technical Proficiency (Event Software, Office Suite). Bachelor's degrees are common.
- Employers: Most resorts and hospitality businesses employ an event coordinator and some employers are event-specific or events are the sole business service. The role can be blended within the job description and. Another Jaunt, Brattleboro Country Club, Bolton Valley, Burke Mountain, Four Square Hospitality, Inn at Manchester, Killington Resort, Kingdom Games, Farm to Fork Fitness Adventures, Jay Peak Resort, Lark Hotels, The Wildflower Inn, Woodstock Inn

## 3. Facilities Managers

- Why it is a climate outdoor job: Keep facilities and physical infrastructure operational during climate-disruptions or reduce impact by quickly addressing damage. Shore up recreation infrastructure to withstand severe weather events and manage physical plant energy, water, waste, and heating/cooling efficiently to be less climate-vulnerable.
- Job Data: SOC 11-3013 | Facilities Managers
  - Median Wage: \$42.40/hr.
  - Annual Growth Rate (compounded average): 0.9%
- Skills/Knowledge: Tool/Equipment Use and Maintenance, HVAC, Water and Plumbing, Electrical, Sustainability, Preventative Maintenance, Budgeting, Financial Forecasting, Vendor Negotiations, Cleaning/Sanitation, Security Systems, Composting, OSHA/VOSHA/Other Regulations, Emergency Management, Succession Planning, Employee Management, Communication, Groundskeeping, Natural Resource Management. A Bachelor's degree and less than 5 years of experience is often required.
- Employers: Snow sports resorts, Craftsbury Outdoor Center, facilities with a physical plant

## 4. Finance Professionals

- Why it is a climate outdoor job: Finance professionals lead decision making on what is financially viable for business development based on cash flows and available capital. Navigation of climate-informed considerations lead to better understanding of financial and operational risk and investments in strategies to adapt and remain resilient.
- Job Data:
  - SOC 11-3031 | Financial Managers
    - Median Wage: \$64.29/hr.
    - Annual Growth Rate (compounded average): 1.7%
  - SOC 43-3031 | Bookkeeping, Accounting, and Auditing Clerks

- Median Wage: \$24.77/hr.
- Annual Growth Rate (compounded average): -0.1%
- Skills/Knowledge: Accounting, bookkeeping, financial forecasting, data analysis, budgeting, and risk management are necessary skills for finance professionals. Common credentials include a Bachelor's degree, Certified Public Accountant (CPA), Certified Management Accountant (CMA), and Certified Corporate FP&A Professional (FPAC). Most VT colleges and universities with business programs offer courses for financial professionals, such as the University of Vermont's Master of Accountancy program. Community College of Vermont offers stackable certificates for entry-level financial roles. 5 years of experience or more is desired for those assuming these roles.
- Employers: Larger companies may have financial professionals such as a Chief Financial Officer on staff. Small and growing companies may rely on an owner or manager with basic skills such as bookkeeping, then contract a CPA to help with taxes. Organizations such as the Vermont Small Business Development Center, Vermont Community Loan Fund, or Community Capital of Vermont offer free or affordable financial advising services to small businesses. Some growing businesses will hire a fractional Chief Financial Officer to benefit from focused expertise while reducing costs.

## 5. Human Resource Managers

- Why it is a climate outdoor job: These management roles are responsible for recruiting and retaining the professionals in all climate jobs across the industry. They foster workplace culture and systems to make sure employees are supported in and out of the workplace, contributing to personal and personnel resilience. Navigating the needs of employees during a climate event or shifts involves schedules, responsibilities, mental health, and workplace safety. Messaging climate skill sets in hiring materials and processes attracts candidates with skill sets for adaptation and facilitating leadership and development supports enterprise strategy and career advancement.
- Job Data: SOC 11-3121 | Human Resources Managers
  - Median Wage: \$59.78
  - Annual Growth Rate (compound average): 1.0%
- Skills/Knowledge: HR managers rely on strong leadership, interpersonal, and administrative skills, as well as legal compliance, data analysis and management, recruiting, ethical judgement, psychology, and performance management. A minimum of 5 years experience and a bachelor's degree is common for these roles. The University of Vermont, Vermont State University, and Community College of Vermont offer Human Resource Management Certificate programs.
- Employers: Dedicated staff in HR management roles are common at big companies such as larger ski resorts or gear and apparel manufacturing companies. Smaller companies may only have a sole owner or manager who assumes the responsibilities.

## 6. Legal/Compliance Professionals

- Why it is a climate outdoor job: Legal aids, lawyers, and compliance roles are instrumental in helping businesses understand the legal and regulatory environment in which a business operates. As climate-related regulations are created and changed, these professionals offer the expertise needed to determine how a business must act to be compliant with the law and reduce legal risk. As climate impacts disrupting operations and legal contracts between businesses become more frequent, these professionals help navigate protections for all parties involved.

- Job Data:
  - SOC 23-1011 | Lawyers
    - Median Wage: \$48.60/hr.
    - Annual Growth Rate (compound average): 0.8%
  - SOC 13-1041 | Compliance Officers
    - Median Wage: \$42.57/hr.
    - Annual Growth Rate (compound average): 0.9%
- Skills/Knowledge: They rely on strong analytical skills, deep knowledge of the regulatory environment and legal system, critical thinking, and excellent written and oral communication skills. Doctoral and professional degrees are typical for Lawyers, while Compliance Officers often hold bachelors degrees and receive moderate on-the-job training. Many education opportunities are available in Vermont, including the Master of Climate and Environmental Policy program at Vermont Law and Graduate School. The Society of Corporate Compliance & Ethics offers an industry-recognized credential called Certified Compliance & Ethics Professional (CCEP).
- Employers: Larger employers like Gordini or Smugglers Notch Resort may have roles like Compliance Manager on staff while smaller employers often hire legal/compliance consultants or pay to retain lawyers for occasional guidance.

## 7. Supply Chain Analysts

- Why it is a climate outdoor job: Roles that analyze and manage supply chains for outdoor gear and apparel manufacturers can help steer those businesses towards systems that reduce risk of climate-related disruption. These professionals work with partners all along the supply chain to ensure materials and products are available when needed to get products to consumers on time.
- Job Data: SOC 13-1081 | Logisticians
  - Median Wage: \$39.89/hr.
  - Annual Growth Rate (compounded average): 1.1%
- Skills/Knowledge: Supply chain analysts rely on technical data management skills like use of Excel and Tableau and material or enterprise resource planning systems to optimize logistics. They usually have strong interpersonal skills to work internally across departments and externally with suppliers. Problem solving, attention to detail, and systems management are critical for success. Bachelor's degrees are common. The University of Vermont and Vermont State University offer supply chain management courses through their business programs. Central Vermont Adult Education offers the Purchasing Fundamentals course that provides some of the core functions required for the career.
- Employers: Smaller companies who have shorter, simpler sourcing and distribution might rely on the sole owner or a staff member who serve multiple functions to manage the supply chain. Supply chain consultants may be hired for brands increasing the footprint of their operations. Larger employers like Cabot Hosiery Mills and Burton have teams of people in these roles to manage complex international supply chains.

## 8. Sustainability Specialists

- Why it is a climate outdoor job: Sustainability specialists are professionals who help a business understand its financial, environmental, and social impact and the strategies the business can employ to reduce harmful impacts. These roles are critical for understanding the systems in which businesses operate to develop a strategy to

optimize costs, reduce risks, and leverage an ever-shifting business environment in the face of climate scenarios.

- Job Data:
  - SOC 13-1199 | Business Operations Specialists, All Other
    - Median Wage: \$32.29/hr.
    - Annual Growth Rate (compounded average): 0.8%
- Skills/Knowledge: These roles rely on advanced skills and knowledge of systems-thinking, strategy, data analysis, communication, business function, creative thinking, reporting frameworks, materiality, and ESG (environmental, social, and governance). Bachelor's degrees are common. The Sustainable Innovation-MBA at the University of Vermont provides graduates with a broad skillset to become sustainability professionals.
- Employers: Sustainability specialists may often serve larger, mission-oriented businesses helping integrate a sustainability strategy across business divisions. Sustainability specialists at smaller businesses might be hired to fill more common roles, but be given the agency to work with the management team on integrating sustainability strategies across the business.

## 9. Community and Recreation Planners

- Why it is a climate outdoor job: Community and recreation planners work with private and public sector clients on project planning and management, legal issues, fundraising, public engagement processes, and partnership development. Initiatives often alter typical recreation patterns or infrastructure, taking into consideration environmental and social factors involving recreation trails, parks, ski resorts.
  - Skills/Knowledge: These roles rely on advanced skills and knowledge of systems-thinking, strategy, data analysis, asset mapping, regulations, engineering, financial and market analysis, and communication. Planning may involve multiple years, phases, or seasons.
  - Employers: Consulting firms such the SE Group and Northbound Ventures Consulting are examples of enterprises that serve private and public sector clients related to outdoor communities and economies.
- 

## C. Builders and Technical Adapters

**Outcome:** Outdoor industry businesses adapt their seasonal product and service offerings to steady year-round revenue.

**Description:** These are jobs that are expanding operations, products, and services to help increase resilience in the face of shifting season lengths and weather patterns. These professionals rely on technical skills to execute the new directions that business planners and strategists decide to go in to adapt to climate impacts.

**Jobs:** Bike Mechanics, Guides & *Outdoor Educators* (see detail under [Community and Market Activators](#)), Product Designers & Developers, Trail Professionals (see detail under [Land & Ecosystem Managers](#)), Snowmakers, Production Sewists

## 1. Bike Mechanics

- Why it is a climate outdoor job: As shifting seasons and weather patterns decrease the average length of the winter sports season, snowsports retail service shops, resorts, guides and outfitters, and tour operators are bringing in less revenue in the winter. To increase four-season revenue to remain financially viable, many of these businesses are expanding their offerings to include bike rentals, sales, and service, and bike mechanics are the professionals with the technical skills and knowledge to support these operations.
- Skills/Knowledge:
  - General: Bike Anatomy, Industry Standards, Tool Use, Tube/Tire Changes, Drivetrains, Derailleur, Brake Systems, Hubs & Wheels, Headsets, Bottom Brackets, Retail Landscape, Customer Service, Service Writing, Sales
  - Advanced: Wheel-Building, Suspension Service, E-bike Service, Bike Fitting, Hydraulic Brake Systems, Specialized Component Repair.
- Job Data: SOC 49-3091 | Bicycle Repairers
  - Median Wage: \$22.83/hr.
  - Annual Growth Rate (compounded average): 1.8%
- Employers: AJ's Ski & Sports, Analog Cycles, Base Camp, Basin Sports, Battenkill Bicycles, Betty's Bikes, Bicycle Express, The Bike Hub, Bolton Valley, The Boot Pro, Bootlegger Bikes St. Albans, Brattleboro Bicycle Shop, Burke Mountain Earl's Cyclery, Chuck's Bikes, Darkside Snowboards, DownValley Bikes and Apparel, East Burke Sports, Equipe Sport, Freeride Montpelier, First Stop Board Barn, The Gear House, The Great Outdoors, Green Mountain Bicycles, Green Mountain Pro Tune, Jay Cloud Cyclery, The Kingdom Bike Shop, Local Motion, Madbush Falls Riders Outpost, MountainOps, Old Spokes Home, Onion River Outdoors, Outdoor Gear Exchange, Porcupine Bikes, Restorative Spokes, REI, Riverside Cycles, Ski Rack, Slopestyle Ski & Bike, Stark Mountain Bike Works, Tygart Mountain Sports, Vermont Bicycle Shop, Vermont Bike & Brew, Waterbury Sports, West Hill Shop

## 2. Product Designers & Developers

- Why it is a climate outdoor job: Product designers and developers are helping Vermont gear and apparel manufacturers design and develop climate-conscious products.
  - Many designers and developers are working on products for other seasons beyond their winter lines as winters become shorter.
  - Regulation of manufacturing involving PFAs, a harmful chemical with significant environmental impact often used in outdoor apparel and gear, is requiring product designers to find new methods of creating products without sacrificing high performance.
  - One team of these professionals in VT at a start up apparel manufacturing business designed 3-season, tick-proof overalls with the knowledge that vector-borne illnesses are forecast to spike with the changing climate.
- Job Data:
  - SOC 27-1021 | Commercial and Industrial Designers
    - Median Wage: \$32.23/hr.
    - Annual Growth Rate (compounded average): 0.4%
  - SOC 27-1022 | Fashion Designers
    - Median Wage: \$28.23/hr.
    - Annual Growth Rate (compounded average): 0.6%

- Skills/Knowledge: Gear/Apparel Manufacturing Regulations, Materials/Textiles Science, Product Design/Pattern Making, Manufacturing Processes, Visualization (CAD, Adobe Creative Suite), Market and Trends, Circularity, Life Cycle Analysis. Bachelor’s degrees are common.
- Employers: 4T2D, AllieCaps, Alpine Gremlins, Alpine Luddites, Analog Cycles, Better Wheel Workshops, Bickford USA, BirdieBlue, Bivo, Buggies Bags, Burton, Cabot Hosiery Mills (Darn Tough), Class 4 Designs, Deliberate Life Designs, Dion-NeviTREK, Fifth Season Canvas, Fourbital Factory, Generator Makerspace, Gordini, J Skis, Jen Green Designs, Kaden Apparel, Lupine Outerwear, Ministry of Culture, Mola Hoods, Nunivak, Orvis, Product Think Tank, Renoun Skis, Rome Snowboards, Skida, Sloggn, Sluffwax, Thicket Adventure, Thuja, Tove Wear, Trash Gear Co., US Sherpa, Vermont Glove, YourYuckies.

### 3. Production Sewists

- Why it is a climate outdoor job: Sewists are helping Vermont gear and apparel manufacturers produce and repair climate-conscious products domestically with reduced supply chain risk.
  - BirdieBlue employs a network of home sewists across the state. If some are disrupted by Vermont’s frequent flooding, the others can step in to offset production losses.
  - Sandbox employs sewists with expertise in apparel repair service, providing an operating model insulated from global supply chain disruptions.
- Job Data: SOC 51-6031 | Sewing Machine Operators
  - Median Wage: \$19.17/hr.
  - Annual Growth Rate (compounded average): -1.7%  
*Note: Through VOBA’s workforce development work, it has observed an increase in demand for sewists in the outdoor rec gear/apparel industry since 2024.*
- Skills/Knowledge: Materials/Textiles Specifications, Product Design/Pattern Making, Reading a Tech Pack, Production Sewing, Industrial Machine Use, Stitch Types and Uses, Manual Dexterity, Quality Control, Repair Techniques, Circularity, Life Cycle Analysis. Some on-the-job training is common.
- Employers: 4T2D, AllieCaps, Alpine Gremlins, Alpine Luddites, BirdieBlue, Buggies Bags, Class 4 Designs, Fifth Season Canvas, Fourbital Factory, Bickford USA, Generator Makerspace, Ministry of Culture, Mola Hoods, Nunivak, Skida, Thuja, Vermont Glove. *Note: Through VOBA’s workforce development work, it has identified additional employers that currently contract sewists overseas. For many of these employers, finding qualified sewists within VT—not labor costs—is the primary barrier.*

### 4. Snowmakers

- Why it is a climate outdoor job: The snowsports industry is facing several climate-related challenges: shorter, more variable winters, decreased snowpacks, a higher-heat index, prolonged drought, and increasing frequency and severity of melting precipitation events. Snowmakers are on the front lines, determining how to produce high and timely volumes of snow “product” to extend the snowsports season—and the revenue-earning opportunity of related businesses—by up to four months by efficiently using energy and a limited water supply.
- Job Data: Not available

- Skills/Knowledge: Risk Management, Hand Tool Use/Maintenance, ATV/UTV and Snowmobile Operation, Snowmaking Equipment Use/Maintenance, Reading Artificial Snow, Meteorology/Weather Monitoring, High-Pressure Water/Air Systems, Ergonomics, First Aid, Welding, Torch Use, High Physical Endurance, Skiing/Snowboarding, Mechanical Aptitude, Teamwork, Communication
- Employers: Bolton Valley, Bromley Mountain, Burke Mountain, Catamount Outdoor Center, Cochran's Ski Area, Craftsbury Outdoor Center, Jay Peak Resort, Killington/Pico Resort, Mad River Glen, Magic Mountain, Mount Snow, Okemo Resort, Quechee Club, Rikert Nordic Center, Sapsedena Six, Smuggler's Notch Resort, Stratton Mountain Resort, Stowe Mountain Resort, Sugarbush, von Trapp Family Lodge & Resort, Woodstock Inn & Resort.

## D. Land and Ecosystem Managers & Recreation Adjacent Roles

**Outcome:** Outdoor industry businesses and their customers have consistent access to climate-resilient landscapes and recreation infrastructure.

**Description:** These are jobs that develop and employ climate-informed best management practices on built recreation infrastructure such as trails, watersports put-ins/takeouts, huts/shelters, as well as natural assets such as wildlife, forests, rivers, lakes, fields, and mountains to ensure public access to healthy ecosystems to recreate in. In addition to highly specialized private sector employees, many of these professionals are employed by the public and social sectors through service learning.

**Recreation-Adjacent Occupations:** Several adjacent industries overlap with the outdoor recreation industry in providing outdoor services and products essential for climate resilience. The natural resources, forestry, agriculture, and transportation sectors particularly include occupations playing key roles such as conservation technicians and foresters, as well as those managing farms and sugarmaker operations and those maintaining infrastructure such as roads, bridges and facilities.

**Jobs:** Parks and Recreation Managers, Trail Professionals

\*Recreation-Adjacent Jobs: Conservation Technicians, Foresters

### 1. Parks and Recreation Managers

- Why it is a climate outdoor job:
  - State Parks staff, Recreation Managers and Municipal Parks and Recreation staff help manage staff and determine how to maintain facilities, recreation infrastructure, and natural resources so that parks, beaches, town forests, and more stay open in the face of climate disruptions and accessible for public use to provide basic resources such as water and shelter.
  - By parks, beaches, town forests and other recreation facilities remaining open and accessible, the public can better manage mental, social-emotional, and physical health, and develop a closer connection with the natural landscape.
- Job Data:
  - SOC 11-9072 | Entertainment and Recreation Managers, Except Gambling
    - Median Wage: \$37.69/hr.
    - Annual Growth Rate (compounding average): 1.9%
  - SOC 11-9121 | Natural Sciences Managers

- Median Wage: Not Available
  - Annual Growth Rate (compounding average): 0.9%
- SOC 39-1014 | First-line Supervisors of Entertainment And Recreation Workers, Except Gambling Services
  - Median Wage: \$23.38/hr.
  - Annual Growth Rate (compounding average): 1.7%
- Skills/Knowledge: Staff Supervisory, Budget Management, Community Engagement, Saw/Axe Use/Maintenance, Customer Service, Conflict Resolution, Construction/Maintenance, Carpentry, PoS Systems, Invasive Species Control, Chainsaw Use/Maintenance, Project Management, Communication, Environmental Monitoring, Data Management, Environmental Science, Soil Health, Flora/Fauna Identification, Natural Resource Management, First Aid, GIS/Mapping, Environmental Regulatory Knowledge, B.S. in Natural Resource Management or Parks & Recreation
- Segments: Natural Resources, Community Organizations
- Employers: Montpelier Parks & Recreation, U.S. Forest Service, Town of Milton, Vermont Department of Forests, Parks, and Recreation.

## 2. Trail Professionals

Additional Theme: Builders & Technicians

- Why it is a climate outdoor job: Many of Vermont’s businesses (hospitality, resorts, trail networks, general stores, retailers, guides and tour operators, etc.) rely on revenue from trail users, so when trails are shut down due to damage from severe flooding or wind events, those businesses can lose significant revenue. This is especially important as more businesses expand operations to be less reliant on non-winter activities for revenue. Trail professionals are essential to designing, building, and maintaining climate-resilient infrastructure that handles high-volume precipitation events and can clear fallen trees in a safe and timely manner. “Trail professional” does not refer to one occupation title but rather the designers, builders, maintainers, and managers of trail infrastructure.
- Job Data: Not Available
- Skills/Knowledge: Reading the Landscape, Tool Use/Maintenance, Ergonomics, Drainage Features, Chainsaw Use, Understanding of User Experience, Rock Work, Erosion Control, Mini-Excavator Operation, Project Management, Environmental Science, Environmental Regulations, Soil Types, Volunteer Coordination, First Aid, High Physical Endurance, GIS/Mapping
- Employers: Apex Trailworks, Ascutney Outdoors, Backslope Trail Building, Bolton Valley Resort, Burke Mountain, Catamount Trail Association, CragVT, Craftsbury Outdoor Center, Cross Vermont Trail Association, Dirt Shapes, Fellowship of the Wheel, Green Mountain Club, Hike Dorset, Ide Ride, Killington Resort, Kingdom Trails, KSA Built, L&D Trailworks, Montpelier Parks, Northern Forest Canoe Trail, Northwoods Stewardship Center, Okemo Resort, Rabbit Tracks Trail Works, Richmond Mountain Trails, Sinuosity, Slate Valley Trails, Stratton Mountain Resort, Stowe Trails Partnership, Timber & Stone, Upper Valley Trails Alliance, Vermont Mountain Bike Association, Vermont Forest, Parks, & Recreation, Vermont Youth Conservation Corps, VT Huts & Trails, von Trapp Family Lodge & Resort, Woodstock Inn & Resort, Woodstock Area Mountain Bike Association.

### 3. Conservation Technicians | Recreation-Adjacent Role

- Why it is a climate outdoor job:
  - Boots on the ground doing conservation work to counter the effects of climate change and protect the ecological integrity of the landscapes we recreate in, including projects involving trail management, lake/stream infiltration infrastructure, riparian buffer planting, reforestation, invasive species management, and environmental and recreation monitoring.
- Job Data:
  - SOC 19-4071 | Forest and Conservation Technicians
    - Median Wage: \$23.32/hr.
    - Annual Growth Rate (compounding average): 0.7%
  - SOC 19-1031 | Conservation Scientists
    - Median Wage: \$29.75/hr.
    - Average Growth Rate (compounding average): 1.1%
- Skills/Knowledge: Hand Tool Use/Maintenance, Reforestation/Revegetation, Riparian Buffers, Invasive Species Control, Infiltration Steps, Trail Building, Rock Work, Chainsaw Use/Maintenance, Carpentry, Project Management, Teamwork, Communication, Environmental Monitoring, Data Management, Environmental Science, Soil Health, Flora/Fauna Identification, Natural Resource Management, Herbicide Application, First Aid, GIS/Mapping. Bachelor's degrees are common.
  - More on [Conservation Technicians](#) from Vermont Sustainable Jobs Fund
- Employers: Audubon Vermont, Nature Conservancy-Vermont, Long View Forest, North Branch Nature Center, Northeast Woodlands Training, Northern Forest Canoe Trail, Poultney Mettowee Natural Resources Conservation District, Northwoods Stewardship Center, Redstart, Vermont Land Trust, Vermont Youth Conservation Corps.

### 4. Foresters | Recreation-Adjacent Role

- Why it is a climate outdoor job:
  - Boots on the ground doing forestry work to counter the effects of climate change and protect the ecological integrity of the landscapes we recreate in, involving projects including stream loading, managing forests for wildlife habitat, developing management plans for landowners that include recreation considerations, and managing invasive species.
- Job Data: SOC 19-1031 | Foresters
  - Median Wage: \$36.71/hr.
  - Average Growth Rate (compounding average): 0.4%
- Skills/Knowledge: Saw/Axe Use/Maintenance, Reforestation, Riparian Buffers, Invasive Species Control, Chainsaw Use/Maintenance, Project Management, Communication, Environmental Monitoring, Data Management, Environmental Science, Soil Health, Flora/Fauna Identification, Natural Resource Management, Conservation Management Plans, UVA (Current Use) Program, First Aid, Timber Markets, Timber Cruising, Skidsteer, Silviculture, GIS/Mapping, Regulatory Knowledge, B.S. in Forestry or related field, Vermont licensure for Foresters.
  - More on [Forestry Careers](#) from Vermont Sustainable Jobs Fund
- Employers: Birdseye Forestry, Greenfire Enterprises, Greenleaf Forestry, Long Meadow Resource Management, Long View Forest, U.S. Forest Service, Northwoods Stewardship Center, Vermont Department of Forests, Parks, and Recreation, Vermont ForestWorks, Vermont Land Trust.

## E. Community and Market Activators

**Outcome:** Outdoor industry businesses bolster public engagement with outdoor recreation to support community health, wellness, education, and stewardship.

**Description:** These are jobs that educate people to connect them to the natural world to maintain physical, social-emotional, mental, and spiritual health, and to inform and engage the public to influence behavior. Through education and communications, these professionals build community, foster a stewardship ethic, and activate the public to take action.

**Jobs:** Event Planners (*see detail under [Planners & Strategists](#)*), Guides and Outdoor Educators, Marketing and Communications Professionals, Volunteer Coordinators

### 1. Guides and Outdoor Educators:

Additional Theme: Builders & Technicians

- Why it is a climate outdoor job: Outdoor recreation has positive impacts on public health and wellness, and can foster a sense of stewardship in those that participate in outdoor recreation activities. As climate impacts become more frequent, climate anxiety, particularly in youths, may increase. Guides and Outdoor Educators are the professionals with the technical skills and knowledge to engage the public with outdoor recreation to support community health, wellness, education, and foster a stewardship ethic.
- Skills/Knowledge: Technical Recreation Skills (Biking, Climbing, Paddling, Snowsports, etc), First Aid, Educating, Program Planning, Adventure Programming, Teams Building & Small Group Dynamics, Responsible Recreating (Land Owner Appreciation, Leave No Trace), Gear/Apparel Use/Maintenance, Group Management, Navigation, Risk Management, Logistics, Communication
- Employers: 3rd Alarm Charters, Ash N' Birch Outdoor Education, Billings Farm & Museum, Catamount Fishing Adventures, Crow's Path, Green Mountain Adventures, Green Mountain Rock Climbing Center, Education for Climate Resilience, Kingdom East School District, NEK Outfitters and Guides, Petra Cliffs Climbing Center & Mountaineering School, Shelburne Farms, Siskin/Coutts Education Center, Sunrise Mountain Guides, Umiak Outfitters, Vermont Center for Ecostudies, Vermont Institute of Natural Science, Vermont State University-Lyndon, White River Natural Resources Conservation District (ReGeneration Corps).

### 2. Marketing and Communications Professionals:

- Why it is a climate outdoor job: Marketing and communications professionals can use their storytelling skills to educate and activate the public around climate initiatives to amplify the business or community's adaptation and resilience efforts.
- Skills/Knowledge: Writing, Communication, Storytelling, Graphic Design, Photography, Videography, Data Analytics, Data Visualization, Social Media Management, SEO, Content Creation, Customer Relationship Management Software, Branding, Public Relations, Project Management, Campaign Management, Network Management, Marketing, Advertising, Sales
- Employers: Many outdoor businesses employ marketing and communications professionals as a focused role while smaller businesses rely on limited staff to assume these responsibilities into their roles. Some businesses contract marketing and communications needs out to expert service providers.

### 3. Volunteer Coordinators:

- Why it is a climate job: Volunteer Coordinators have the skills and abilities to gather a force of community members and put them to work to efficiently address a need. They could activate a “Green Team” internally at the company, muster scores of volunteers to muck out basements after flooding and staff emergency response shelters, or organize school groups to learn about trail maintenance techniques while repairing washed out sections of trail.
- Skills/Knowledge: Communication, Educating/Teaching, Writing, Event Planning, Project Management, Schedule Management, Volunteer Management Software, Social Media, Conflict Resolution, Teamwork, Group Management, Program Planning, Risk Management
- Employers: This role is often included as part of another job’s responsibilities, such as at Kingdom Trail Association where the trails manager is also the volunteer coordinator. Some employers have dedicated volunteer coordinators who are experts at managing networks of thousands of volunteers, such as at Green Mountain Club.

## Section 4: COWI Recommendations

The COWI Recommendations are designed with employers and employees as primary beneficiaries and with career navigators, education & training providers, state agencies & policymakers as secondary audiences. Priorities have been informed by survey, interview, and convening insights combined with research and best practices.

**Short-term COWI Recommendations in the Landscape Analysis (Tier 1):** Identify priorities for professional development areas for hosting one industry-led training, supporting one education-led training and strengthening one partnership in service-based learning. Guidance is provided on how knowledge building and hands-on experiences fit into existing or potential pre-apprenticeship and Registered Apprenticeship Partnerships.

**Long-term COWI Recommendations in the Final Report (Tier 2):** Identify investment opportunities for the State and private sector to support outdoor businesses in their adaptation, growth, and recruitment in the face of climate change. Recommendations will include how to act on research, expand resources, implement professional development, and promote information and stories that attract an innovative workforce as climate problem solvers.

### A. Recommendation Overview

<b>INDUSTRY TRAINING</b>	<b>Tier 1:</b> Employee Recruitment, Retention & Resilience
	<b>Tier 2:</b> Finance, Marketing & Communications, Technical
<b>EDUCATION TRAINING</b>	<b>Tier 1:</b> Support Career and Technical Education
	<b>Tier 2:</b> Post-Secondary Credentials for Entering & Advancing
<b>SERVICE-LEARNING PROGRAMS</b>	<b>Tier 1:</b> Strengthen Service Learning Partnerships to Facilitate Seasonal to Salary Career Pathways
	<b>Tier 2:</b> Invest in Capacity and Programs
<b>SYSTEMS RECOMMENDATIONS</b>	<b>Tier 2:</b> Workforce Data Improvement
	<b>Tier 2:</b> Registered Apprenticeships

## 1. Short-term Recommendation for COWI Industry-Led Training

The Need is Now:

- Climate change is reshaping the outdoor economy faster than businesses can keep up. Support systems lag behind.
- Businesses want to take action but workforce barriers get in the way.
- Businesses need practical skills but available training is fragmented and the training system doesn't match the needs.

A majority of businesses offer training but these efforts would be best harnessed alongside other tools to address recruitment and retention challenges and improve resiliency outcomes.

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## B. Tier 1 Recommendations

### 1. Hosting an Industry-Led Training

**Topic:** Employee Recruitment, Retention & Resilience

**Theme:** Planners and Strategists

**Audience:** Executives and Managers, including Human Resources and any employee with the responsibilities of hiring, managing, and training employees.

**Delivery and Promotion Partners:** VOBA and business and HR organizations (i.e. Society of Human Resources Managers, Vermont Businesses for Social Responsibility, Ski Vermont), Department of Labor, State Workforce Development Board

**Professional Development Description:** Equip decision makers with COWI information and resources to build personal and personnel resilience with employees, apply best practices for recruitment, address seasonality, and learn from leaders across the Vermont outdoor industry.

**Skills Demand:** Managing people, staff activation, operations resilience, and Climate 101

**Components and Learning Outcome(s):**

- I. Foundations of Employee Recruitment, Retention, and Resilience
  - A. Understand how the outdoor industry is impacted by climate and opportunities to address workforce challenges through the lens of Social Determinants of Work
- II. Leveraging Climate Jobs for Recruitment and Retention
  - A. Understand climate psychology for why mission-aligned jobs attract and engage a growing number in the outdoor workforce
  - B. Develop language for recruiting and building agency within climate jobs
- III. Seasonal and Employment Considerations
  - A. Understand opportunities for addressing climate shifts affecting seasonal operations and employment transitions
  - B. Collaborate with partners to strengthen seasonal and year-round workforce
- IV. Vermont Outdoor Industry Recruitment Channels Exploration
  - A. Understand outdoor channels for recruitment for jobs and quality candidates

**Resilience Outcomes:** Enterprises increase capacity to recruit and retain an industry-wide workforce motivated and prepared to deliver business climate adaptation and resilience strategies to reduce risk and optimize costs.

**Rationale:**

- **Capacity Risk:** Business impact is being felt through operational dysfunction, planning challenges, and workforce impacts.
- **Training Demand:** There exists a high demand but low ability to fill human resources gaps to assist in recruitment, retention and workforce safety.
- **Ability and Value:** People are the most valuable asset to businesses and organizations, yet most don't feel equipped or are unsure they have the human resources skills to address climate scenarios. Human resources is a core function with wide application across the industry.

**2. Support Education-Led Training**

**Audience:** Student and adult learners and upskilling professionals with potential (interest or positioning) to enter the outdoor industry or advance within their employment.

**Delivery and Promotion Partners:** Education institutions (i.e. University of Vermont/Professional and Continuing Education, Vermont State University, Community College of Vermont, Career and Technical Education).

**Professional Development Description:** Materials from COWI research and industry-led training lent to curriculums of existing and developing education programs (i.e. micro-credentials, certificates, courses). Support provided to identify existing or explore development of Registered Apprenticeship Programs (RAP).

**Workforce and Resilience Outcomes:** Climate knowledge is layered onto education topics and industry expertise, thereby applied in the workplace upon employment, benefitting employers. Enhanced skills leads to better economic opportunity and the ability to contribute to climate-resiliency outcomes. Growth of and participation in climate-related RAPs provide classroom and hands-on experience while earning an income, better preparing apprentices for career pathways and contributing to resilience outcomes.

**3. Strengthen Service-Learning Partnerships To Facilitate Seasonal to Salary Pathways**

**Audience:** Student and adult learners, upskilling professionals, and seasonal employees with aspirations to enter the outdoor industry or advance within their employment.

**Delivery and Promotion Partners:** Service-learning providers (i.e. Department of Labor National Governors Association Service to Careers Initiative, SerVermont, Vermont Serve, Learn, and Earn) and employers (Vermont Youth Conservation Corps, Green Mountain Club, NorthWoods Stewardship Center, school districts, Vermont State Parks, municipal recreation departments, youth camps)

**Professional Development Description:** Utilize career pathways materials to facilitate exploration, foster job placement between service learning programs and employers, increase industry workforce recruitment and retention and strengthen "seasonal to salary" career pathways that deliver climate-resilience outcomes.

**Workforce Outcomes:** Service learning elevates the visibility of outdoor career pathways. Offers positive signals and references to the hiring manager. Service learning breaks down barriers for employers to attract and retain a diverse workforce that is better skilled for climate-ready employment and supports professional growth and economic security for employees. Realize full - time employment from seasonal opportunities.

**Resilience Outcomes:** Businesses and their customers have consistent access to climate-resilient landscapes and recreation infrastructure. Enterprises adapt seasonal product and service offerings to steady year-round revenue. Enterprises bolster public engagement with recreation to support community health, wellness, education, and stewardship.

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## C. Tier 2 Recommendations

### 1. Industry-Led Trainings

#### I. Topic: Finance

**Theme:** Planners and Strategists

**Audience:** Finance professionals that lead decision making on what is financially viable based on cash flows and available capital for business development, climate recovery and resilience. Responsible for accounting, bookkeeping, financial forecasting, data analysis, budgeting, and risk management.

**Professional Development Description:** Navigation of climate-informed finance considerations, financial forecasting, and Vermont financing resources to better understand financial and operational risk, strategies to adapt and remain resilient.

**Skills Demand:** Climate-informed financial planning, foundational Climate basics, Funding operations resilience

**Resilience Outcome:** Enterprises develop business climate adaptation and resilience strategies to reduce risk and optimize costs

#### II. Topic: Marketing and Communications

**Theme:** Community and Market Activators

**Audience:** Staff with Marketing and Communications responsibilities, leadership

**Professional Development Description:** Marketing training that meets the needs of small organizations and harnesses peak demand for functional climate training, especially during times of climate impacts elsewhere in the state.

**Skills Demand:** Crisis comms, messaging templates, regional resources, supporting in-need communities, climate-smart marketing.

**Resilience Outcomes:** Enterprises bolster public engagement with outdoor recreation to support community health, wellness, education, and stewardship

#### III. Topic: Technical Skills

**Theme:** Builders and Technical Adapters

**Audience:** Trail Builders, Guides and Outdoor Educators, Parks/Recreation Managers, Conservation Technicians, Foresters, Facilities Directors, Volunteer Coordinators

**Professional Development Description:** Technical skills, "Why Outdoor Jobs are Climate Jobs, foundational climate info, seasonal case studies, agility/problem solving.

**Skills Demand:** First Aid, Trail Building/Maintenance, Chainsaw Safety, Emergency Response, GIS/Mapping, Guiding, Environmental Education, Volunteer Coordination

**Resilience Outcomes:** Enterprises adapt seasonal product and service offerings to steady year-round revenue; Businesses and customers have consistent access to climate-resilient landscapes and recreation infrastructure; Enterprises bolster public engagement with recreation to support community health, wellness, education, and stewardship.

## 2. Systems

### I. Invest in Capacity and Programs

**Challenges:** Vermont’s workforce system encompasses both State and private sector entities that provide quality training services, programs, and resources. However, the complex needs of the highly diversified industry requires wide-ranging knowledge and professional development delivery mechanisms to achieve resilience outcomes at scale. Capacity is a primary bottleneck to adequate training, hindered by the availability of leadership and instructors with expertise. Additionally, the lack of programs and facilities limit the ability of entities to administer training and target COWI occupations with knowledge and skill building.

**Recommendation:** Financial investment in Vermont’s workforce development system would equip the government agencies and outdoor industry entities best positioned to deliver training services, programs, and resources for climate resilience outcomes. Funding should be flexible to support the capacity of staff and instructors as well as expanded programs and host facilities accommodating geography and inclusivity. Federal, state, and local funders, philanthropy, businesses, and education institutions are ripe for professional development partnerships.

### II. Workforce Data Systems Improvement

**Challenges:** Based on the limitations of using the U.S. Bureau of Labor Statistics Standard Occupation Classification (SOC) system (see [Section 3: Job/Wage Data and Limitations](#)), the COWI is reliant on data that may not represent the realities of the outdoor workforce. SOC job titles can be unclear, missing, or mismatched to how Vermont employers and professionals classify themselves, and data for the outdoor recreation workforce exclusive of other industries is missing from the Vermont Department of Labor’s E&LMI Division’s survey system.

**Recommendation:** State and outdoor recreation industry partners collaborate to develop a system to collect and make accessible Vermont industry- specific employment information (e.g. job titles, employment counts, job openings, wage) as provided by employers.

**Outcomes:** Outdoor recreation industry stakeholders have accurate data and context to make informed decisions about employment and workforce systems.

- Employers can compare against state and national averages to remain competitive.
- Job-seekers better evaluate and plan career decisions.
- State agencies and policy makers better understand industry context to inform workforce initiatives and policy.
- Career navigators (educators, career counselors, work-based learning coordinators, job-center staff, etc.) better provide job-seekers with information.
- Professional development providers (education institutions, service learning program coordinators, industry organizations, etc.) better design and promote training programs.

### III. Registered Apprenticeships in Vermont's Outdoor Recreation Industry

**Opportunity:** Registered Apprenticeship Programs (RAP) and pre-apprenticeships offer a proven, structured approach to workforce development that connects career-seekers to paid, work-based learning aligned with employer demand. RAPs are built on core elements including progressive wage increases, on-the-job training under the supervision of experienced mentors, related technical instruction delivered by education or training providers, and industry-recognized credentials upon completion. A RAP is a flexible model that allows one employer or groups of employers to operate a program, and that allows career-seekers the unique opportunity to earn wages while they learn valuable technical skills.

Pre-apprenticeship programs are designed to prepare individuals to enter and succeed in RAPs by building foundational skills, providing career exposure, and establishing clear pathways. Together, these models create a talent pipeline that supports recruitment, improves retention, and enables career advancement—making them a highly effective strategy for employers and a critical tool for strengthening the workforce in a competitive labor market.

#### Challenges:

- **Capacity:** RAPs require employer capacity to provide compensation, industry-aligned education, and mentorship to an apprentice. Many Vermont outdoor recreation employers are faced with limited capacity, as evidenced by [low compensation relative to national averages](#), or COWI findings (see [Section 2: Capacity Risk](#)).
- **Visibility and Perception:** Existing RAP programs have low-visibility in the outdoor industry and a perception exists they are for trades jobs such as plumbers and electricians. Vermont Department of Labor RAPs include Ski Lift Mechanic, Tramway Maintenance Technician, Industrial Manufacturing Technician, Accounting Technician, Construction Craft Laborer, and Timber-Framer.
- **Fit:** RAPs are a strong fit for outdoor industry roles that require hands-on skill development over time, where workers benefit from learning on the job while earning wages. This includes occupations such as gear manufacturing, equipment maintenance, guiding, trail building, forestry, and operations roles that combine technical skills with safety and environmental knowledge.
  - Effective RAPS involve: Skills learned progressively in real-world conditions; Employers able to recruit and retain talent locally in a tight labor market; Standardizing training, safety practices, and quality spans the workforce; and Roles offering a pathway to higher skill, higher wage positions over time.
- **Timeline:** Some RAPs span multiple years while others can be designed as shorter, competency-based programs that reflect seasonal work and evolving skill needs.
- **Reliant on Existing Systems:** RAPs require building industry curricula and relationships between the State, employers, and education. VOBA's curricula for trail professionals, bicycle mechanics, snowsports technicians, and production sewists has potential as a foundational system for climate outdoor jobs expanded into RAPs.

**Recommendation:** State and outdoor recreation industry partners should assess how RAPs fit into the development of Vermont's climate outdoor workforce, examine which COWI training topics are the best fit for the RAP structure, what barriers need to be overcome, and next steps for executing training essential to resilience outcomes.