

Climate Change Adaptation and Resilience Specialist

Introduction and Background

The Climate Adaptation and Resilience Specialist is an emerging occupation within the Green Jobs sector. Climate change adaptation was included as a global goal in the 2015 Paris Agreement –the international treaty on climate change. Interest in climate change adaptation has increased as the US witnessed an uptick in the frequency and severity of natural disasters such as hurricanes, wildfires, and drought. Federal policy and funding have shifted from a reactive response –recovering from disasters to preparing for disasters and building community resilience.

Entrants into the field come from various educational programs and experiences representing highly technical and scientific fields and those with planning and policy backgrounds. Most workers are learning their skills on the job.

The **Climate Change Adaptation and Resilience Specialist Occupational Profile** is the latest product developed by the American Society of Adaptation Professionals (ASAP). It is based on the member-developed [Knowledge & Competencies Framework for Climate Change Adaptation and Climate Resilience Professionals](#) and numerous engagement efforts with members and climate practitioners. In 2022, the American Society of Adaptation Professionals identified over 4,000 adaptation jobs in the United States covering many industries, in both public and private sector roles. To learn more about these jobs, please review this [Explainer](#).

What do we mean by adaptation?

Climate change adaptation involves changing our business practices to minimize climate and weather risks for individuals and their communities. For example, in the built environment, roads, bridges, and stormwater infrastructure are designed using 50 years of historic rainfall statistics. The heavier rainfall that we are now experiencing, causing infrastructure failures in some regions, has surpassed historic levels making design standards obsolete. The engineering community is working to adapt its standards to include future rainfall. Adaptation can happen over many time scales, some immediate, following a disaster, or a more extended timeline, such as moving households out of a floodplain.

Every sector of the US economy will need to adapt to climate change. And because climate impacts differ by geography, every region or community will require different adaptation strategies. Thus resilience to climate impacts will vary from region to region.

Job demand

With the passage of the Bipartisan Infrastructure Law (2021), the Inflation Reduction Act of 2022, and the implications of the Executive Order on Environmental Justice, funds to conduct planning and implementation of adaptation projects are available. It is expected that the demand for climate adaptation and resilience skills will increase.

As an emerging occupation, a corresponding Standard Occupational Code has yet to be extracted from related occupations. According to the [Bureau of Labor Statistics](#), growth in the Environmental Scientists occupation, one of the occupations feeding into this emerging role, is expected to grow annually by 9,400 jobs from 2020-2030.

Occupational Definition

Climate Change Adaptation and Resilience Specialists are professionals who analyze and address the diverse impacts of climate change on communities and the natural world. They use a variety of data sources to identify and manage climate risks, assessing potential vulnerabilities across multiple sectors. Their role involves engaging and supporting a community in developing and implementing adaptive strategies while integrating these approaches into existing policies or creating new policies. These specialists work to build resilience, ensure equity, and maintain stability in the face of climate-related challenges, supporting sectors such as education, healthcare, and economic development to improve the overall resilience of communities.

KSA's

Knowledge

Climate adaptation professionals

- Climate change science, including the causes, variability, and consequences of climate change and factors influencing vulnerability to climate impacts.
- Climate change adaptation principles, including risk assessment, adaptive management, resilience building and maintenance, and evaluation
- Relevant policies, regulations, and guidelines related to climate change adaptation at local, regional, national, and international levels
- Methods for assessing climate change impacts and vulnerabilities, such as modeling, scenario planning, and GIS analysis
- Traditional or indigenous knowledge of adaptation practices
- Best practices for developing and implementing adaptation strategies, including diverse stakeholder engagement and participatory approaches
- Best practices for equity-centered engagement and implementation
- Project management, monitoring, and evaluation techniques
- Human-centered approaches to effect change and transformation within systems

- Different cultural norms, values, beliefs, and practices
- Climate change mitigation and the interaction with climate adaptation strategies.

The Climate Change Adaptation and Resilience Specialist may also possess knowledge of the climate and weather-related hazards that require adaptation planning. The natural hazards vary by region and community. There are 18 natural hazards included in the Federal Emergency Management Agency's (FEMA) National Risk Index.

[Avalanche](#), [Coastal Flooding](#), [Cold Wave](#), [Drought](#), [Earthquake](#), [Hail](#), [Heat Wave](#), [Hurricane](#), [Ice Storm](#), [Landslide](#), [Lightning](#), [Riverine Flooding](#), [Strong Wind](#), [Tornado](#), [Tsunami](#), [Volcanic Activity](#), [Wildfire](#), [Winter Weather](#)

Skills

- Analytical skills to assess climate change impacts, vulnerabilities, and risks.
- Problem-solving skills to develop effective adaptation strategies.
- Communication and presentation skills to convey complex climate change information to diverse audiences.
- Interpersonal skills to work effectively with stakeholders from various sectors and backgrounds.
- Research skills to stay current on climate change science, policy, and the practice of adaptation methods.
- Grant writing skills to develop proposals and projects.
- Project management skills to oversee adaptation initiatives' planning, implementation, and evaluation.

Abilities

- Ability to honor and foster inclusivity while centering work around issues of climate justice and equity for all communities, including the vulnerable and marginalized. Effectively interact with individuals and groups from diverse cultural backgrounds by being able to adapt one's behavior and approach accordingly.
- Ability to be persuasively persistent.
- Ability to effect change through facilitation, collaboration, decision-making, collaborative leadership, and coalition building to produce transformational adaptation outcomes.
- Ability to listen, be empathetic, curious, and grow from community work.

Sample Tasks

- Assess climate change impacts and vulnerabilities in specific regions or sectors.
- Develop adaptation strategies, tools, and plans to minimize the risks associated with climate change.
- Collaborate with stakeholders, including government agencies, NGOs, and private sector organizations, to design and implement climate change adaptation projects.

- Ensure that underserved or environmental justice communities are involved.
- Monitor and evaluate the effectiveness of adaptation measures and update plans as needed.
- Conduct research on climate change impacts and potential adaptation measures.
- Communicate climate change risks and adaptation strategies to diverse audiences, including policymakers, businesses, and the general public.
- Train and educate others on climate change adaptation practices.
- Advocate for integrating climate change adaptation into policies, plans, and programs at various levels of government.

Career Pathways and Progression

There are multiple paths to climate adaptation/resilience work. It is an occupation where people with different abilities, interests, and strengths can be trained to develop adaptation competencies. The American Society of Adaptation Professionals has identified the following O*NET occupations as feeder occupations:

- [Atmospheric and Space Scientists \(Climatologists\)](#)
- [Civil Engineers](#)
- [Climate Change Policy Analysts](#)
- [Emergency Management Directors](#) (for elimination)
- [Environmental Restoration Planners](#)
- [Environmental Scientists and Specialists, Including Health](#)
- [Hydrologists](#)
- [Landscape Architects](#) (for consideration)
- [Sustainability Specialists](#)
- [Urban and Regional Planners](#)
- [Water Resource Specialists](#)

A table with O*NET and corresponding SOC codes can be found in the Addendum.

Education

Employers in job ads most often cited Environmental Science, Sustainability, General Engineering, Economics, Business, Environmental Studies, and Public Policy as desired educational backgrounds.

Universities and professional associations are developing educational programs.

Sample Education and Training

University

- [Master's in Community Climate Adaptation, Worcester Polytechnic Institute](#)

Certifications

- [American Institute of Architects - Resilience and Adaptation Certificate](#)
- [Climate Change Resilience Certificate for Professionals, Antioch University](#)
- [Certified Climate Change Professionals](#)
- [Online Graduate Certificate in Climate Science and Adaptation](#)

Training

- [National Highway Institute - Climate Training](#)

Career Progression

The American Society of Adaptation Professionals reviewed job posting data sourced through Lightcast.

Entry-Level

Workers with 0-2 years of experience in this occupation may come from a variety of educational backgrounds at various levels of education. It is not uncommon for most entrants to have a Master's or Doctoral degree.

Job Titles

- Sustainability Coordinator
- Climate Adaptation Consultant - Entry Level
- Climate and Resilience Planner
- Climate and Sustainability Associate
- Climate Action Policy Analyst 1

Top Skills Requested by Employers in Job Ad

1. Climate Change
2. Project Management
3. Environmental Science
4. Budgeting
5. Economics
6. Data Analysis
7. Data Science
8. Data Collection
9. Scheduling
10. Data Management

11. Natural Resources
12. Climate Policy
13. Social Media
14. Customer Service
15. Risk Management

Salary Range

- Bachelor's: 48-64K
 - Master's: 48K-75K
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Mid-Level

Mid-level workers, with 3-8 years, are often project managers. Workers with more than six years of experience do less technical work and more program management and supervisory work.

Job Titles

- Climate and Energy Economist
- Flood Mitigation Program Manager
- Sustainability and Resilience Manager
- Climate Resilience Specialist
- Climate Program Manager
- Climate and Sustainability Associate
- Director Climate Policy
- Climate Science Lead
- Coastal Management and Resilience Specialist
- Assistant Tribal Climate Resilience Liaison
- Urban Climate Resilience Manager

Top Skills Requested in Job Ads

1. Climate Change Analysis
2. Project Management
3. Environmental Science
4. Budgeting
5. Business Development
6. Risk Management
7. Data Analysis
8. Program Management
9. Strategic Planning
10. Environmental Sustainability

Salary Range

- Bachelor's 63K- 85K
 - Master's 72K- 94K
 - Median 74K
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Senior Level

At the senior level, workers are thought leaders and have demonstrated leadership skills. They may serve at the highest government levels or may be an expert in a single natural hazard guiding action across a region or an organization. They may also manage a staff of climate practitioners and authored tools and guidance for community climate resilience. The following information comes from job ads looking for 9-plus years of experience.

Job Titles

- Chief Climate Officer
- Principal Air Quality Control & Climate Change Consultant
- Director - Forest Climate Solutions Impact and Monitoring
- Partner, Corporate Sustainability & Climate Change
- Chief Heat Officer

Top Skills Requested in Job Ads

1. Communication
2. Climate Change
3. Project Management
4. Budgeting
5. Business Development
6. Thought Leadership
7. Economics
8. Key Performance Indicators (KPIs)
9. Customer Service
10. Staff Management
11. Proposal Writing
12. Strategic Development
13. Environmental Science

Salary Range

76K -121K

Select Professional Organizations

There are several professional organizations whose members do climate change adaptation and resilience work.

- [American Society of Adaptation Professionals](#)
- [American Planning Association](#)
- [Institute for Tribal Environmental Professionals](#)

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Appendix 1: Select occupations O*NET to SOC crosswalk

O*NET-SOC 2019 Code	O*NET-SOC 2019 Title	2018 SOC Code	2018 SOC Title	SOC Group
11-9121.02	Water Resource Specialists	11-9121	Natural Sciences Managers	<u>11-0000 Management Occupations</u>
11-9161.00	Emergency Management Directors	11-9161	Emergency Management Directors	<u>11-0000 Management Occupations</u>
13-1199.05	Sustainability Specialists	13-1199	Business Operations Specialists, All Other (11-9121)	<u>11-0000 Management Occupations</u>
17-1012.00	Landscape Architects	17-1012	Landscape Architects	<u>17-0000 Architecture and Engineering Occupations</u>
17-2051.00	Civil Engineers	17-2051	Civil Engineers	<u>17-0000 Architecture and Engineering Occupations</u>
19-2021.00	Atmospheric and Space Scientists (Climatologists)	19-2021	Atmospheric and Space Scientists	<u>19-0000 Life, Physical, and Social Science Occupations</u>
19-2041.00	Environmental Scientists and Specialists, Including Health	19-2041	Environmental Scientists and Specialists, Including Health	<u>19-0000 Life, Physical, and Social Science Occupations</u>
19-2041.01	Climate Change Policy Analysts	19-2041	Environmental Scientists and Specialists, Including Health	<u>19-0000 Life, Physical, and Social Science Occupations</u>
19-2041.02	Environmental Restoration Planners	19-2041	Environmental Scientists and Specialists, Including Health	<u>19-0000 Life, Physical, and Social Science Occupations</u>
19-2043.00	Hydrologists	19-2043	Hydrologists	<u>19-0000 Life, Physical, and Social Science Occupations</u>
19-3051.00	Urban and Regional Planners	19-3051	Urban and Regional Planners	<u>19-0000 Life, Physical, and Social Science Occupations</u>

Occupations in Blue are under consideration.

Note on Sustainability Specialists (ONET). SOC Crosswalk calls them Business Operations Specialists. CIP code on Sustainability Studies corresponds to Natural Science Managers SOC. Left Business Operations but used Natural Science Managers as the SOC Group.

Appendix 2: CIP Codes for Feeder Occupations

O*NET-SOC 2019 Code	O*NET-SOC 2019 Title	2018 SOC Code	2018 SOC Title	CIP Codes
11-9121.02	Water Resource Specialists	11-9121	Natural Sciences Managers	14.0805 40.0605
11-9161.00	Emergency Management Directors	11-9161	Emergency Management Directors	43.0302
13-1199.05	Sustainability Specialists	13-1199	Business Operations Specialists, All Other (11-9121)	30.3301
17-1012.00	Landscape Architects	17-1012	Landscape Architects	04.0601
17-2051.00	Civil Engineers	17-2051	Civil Engineers	14.0801
19-2021.00	Atmospheric and Space Scientists (Climatologists)	19-2021	Atmospheric and Space Scientists	40.0402
19-2041.00	Environmental Scientists and Specialists, Including Health	19-2041	Environmental Scientists and Specialists, Including Health	03.0103 03.0104
19-2041.01	Climate Change Policy Analysts	19-2041	Environmental Scientists and Specialists, Including Health	30.3501
19-2041.02	Environmental Restoration Planners	19-2041	Environmental Scientists and Specialists, Including Health	03.0103 03.0104
19-2043.00	Hydrologists	19-2043	Hydrologists	30.4101 40.0605
19-3051.00	Urban and Regional Planners	19-3051	Urban and Regional Planners	04.0301

Appendix 3: Location Quotients for Feeder Occupations

O*NET-SOC 2019 Code	O*NET-SOC 2019 Title	2018 SOC Code	2018 SOC Title	SOC Group	Target States
11-9121.02	Water Resource Specialists	11-9121	Natural Sciences Managers	<u>11-0000 Management Occupations</u>	North Carolina - 1.69 Montana - 1.31
11-9161.00	Emergency Management Directors	11-9161	Emergency Management Directors	<u>11-0000 Management Occupations</u>	NA
13-1199.05	Sustainability Specialists	13-1199	Business Operations Specialists, All Other (11-9121)	<u>**11-0000 Management Occupations, instead of Business & Financial Operations</u>	See Natural Sciences Managers
17-1012.00	Landscape Architects	17-1012	Landscape Architects	<u>17-0000 Architecture and Engineering Occupations</u>	Colorado - 2.20 North Carolina - 1.64
17-2051.00	Civil Engineers	17-2051	Civil Engineers	<u>17-0000 Architecture and Engineering Occupations</u>	Colorado - 1.93 Montana - 1.70
19-2021.00	Atmospheric and Space Scientists (Climatologist)	19-2021	Atmospheric and Space Scientists	<u>19-0000 Life, Physical, and Social Science Occupations</u>	Colorado - 5.66 Montana - 2.45
19-2041.00	Environmental Scientists and Specialists, Including Health	19-2041	Environmental Scientists and Specialists, Including Health	<u>19-0000 Life, Physical, and Social Science Occupations</u>	
19-2041.01	Climate Change Policy Analysts	19-2041	Environmental Scientists and Specialists, Including Health	<u>19-0000 Life, Physical, and Social Science Occupations</u>	Colorado - 1.73 Montana - 1.65

19-2041.02	Environmental Restoration Planners	19-2041	Environmental Scientists and Specialists, Including Health	<u>19-0000 Life, Physical, and Social Science Occupations</u>	
19-2043.00	Hydrologists	19-2043	Hydrologists	<u>19-0000 Life, Physical, and Social Science Occupations</u>	Montana - 8.16 Colorado - 2.71
19-3051.00	Urban and Regional Planners	19-3051	Urban and Regional Planners	<u>19-0000 Life, Physical, and Social Science Occupations</u>	Colorado - 1.72

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