



7. DROUGHT

7.1 HAZARD PROFILE

7.1.1 Hazard Description

Drought is a period characterized by long durations of below-normal precipitation. A drought is a temporary irregularity and differs from aridity, which is a permanent feature of climate. Drought conditions occur in virtually all climatic zones; characteristics vary significantly from one region to another because drought is relative to the normal precipitation in a region. Drought can affect agriculture, water supply, aquatic ecology, wildlife, and plant life. There are four ways that drought can be defined (NDMC 2013):

- **Meteorological** drought is defined by the departure of precipitation amounts from normal. Due to climatic differences, what might be considered a meteorological drought in one location of the country may not be a drought in another location.
- **Hydrological** drought is defined by the effects of precipitation shortfalls on surface or subsurface water supply available in streams, reservoirs, lakes, and groundwater. It occurs when these water supplies are below normal.
- **Agricultural** drought is defined by the impacts of meteorological or hydrological drought on agriculture. It focuses on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced groundwater or reservoir levels, and other parameters. It occurs when there is not enough water available for a particular crop to grow at a particular time. Agricultural drought is defined in terms of soil moisture deficiencies relative to water demands of plant life, primarily crops. When a drought occurs, the agricultural industry is most at risk in terms of economic impact and damage.
- **Socioeconomic** drought is associated with the supply and demand of an economic good with elements of meteorological, hydrological, and agricultural drought. Socioeconomic drought occurs when the demand for an economic good exceeds the supply as a result of a weather-related shortfall in the water supply.

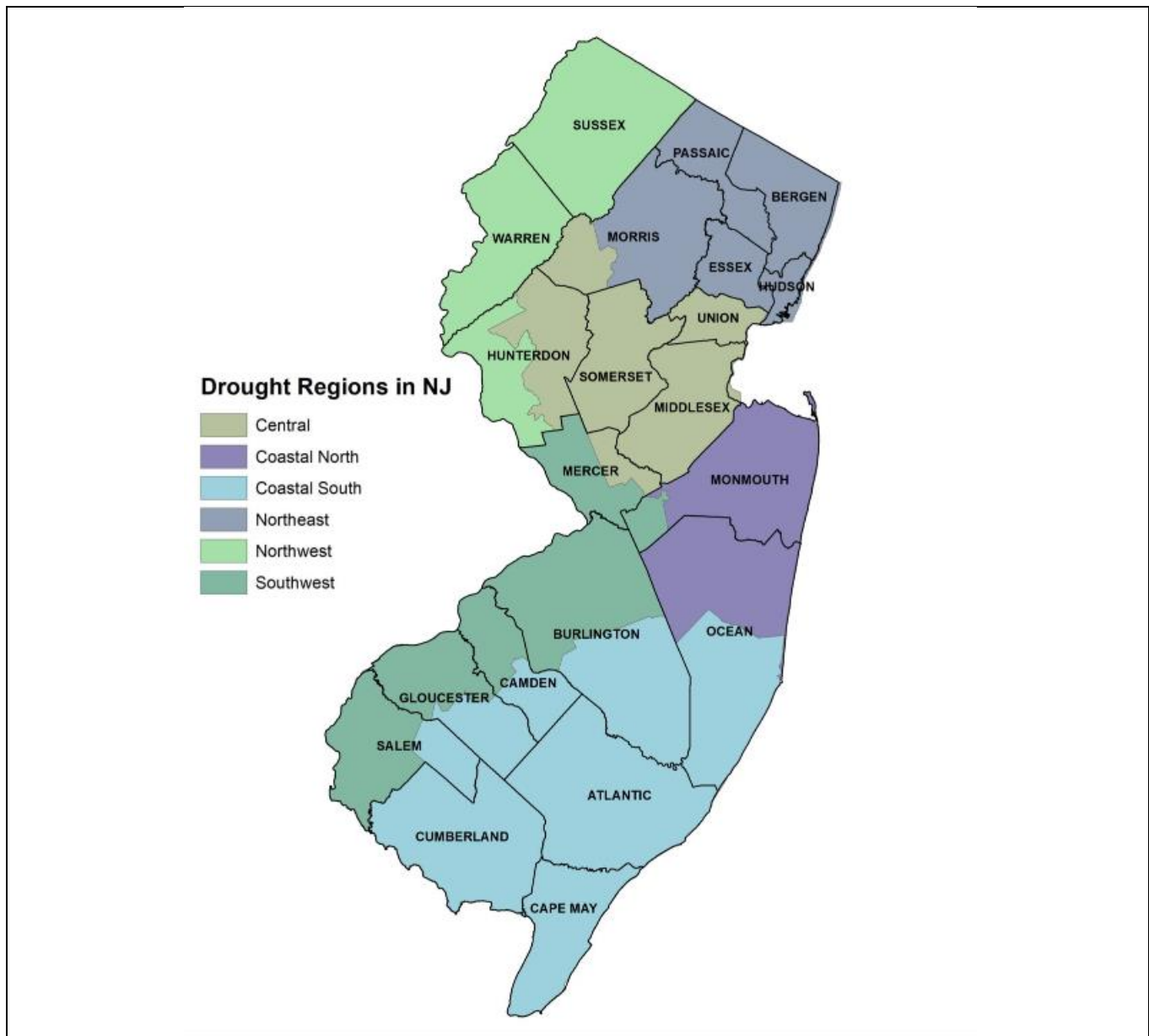
7.1.2 Location

New Jersey is divided into six drought regions, based roughly on watershed boundaries, that reflect regional similarities in climate and water supply sources. This alignment enables the New Jersey Department of Environmental Protection (NJDEP) to address changing conditions in one area without imposing restrictions on regions not facing water shortages. The drought regions correspond with municipal borders, as local police departments are primarily responsible for enforcing water restrictions during drought emergencies (NJDEP n.d.). Cape May County is identified as NJDEP Drought Region 6, the Coastal South (Figure 7-1).

7.1.3 Extent

The severity of a drought depends on the degree of moisture deficiency, the duration, and the size and location of the affected area. The longer the duration of the drought and the larger the area impacted, the more severe the potential impacts (NOAA 2022).

Figure 7-1. NJDEP Drought Regions of New Jersey



Source: NJDEP n.d.

New Jersey Drought Monitoring and Alerting

The State of New Jersey determines drought conditions through a comprehensive monitoring system managed by the NJDEP Division of Water Supply and Geoscience. This system involves regularly assessing the following water supply indicators across different regions of the state (NJDEP 2025):

- Precipitation levels
- Stream flows
- Reservoir and groundwater levels
- Water demands



Based on the findings of ongoing drought monitoring, NJDEP identifies drought conditions in the following four stages (NJDEP n.d.):

- **Normal** is considered the standard moisture soil level. NJDEP conducts routine monitoring of water supply and meteorological indicators.
- **Drought Watch** is the first stage of drought. A drought watch signifies that conditions are dry, but not critically so. During this period, NJDEP closely monitors various drought indicators, such as precipitation, stream flows, reservoir and groundwater levels, and water demands. Additionally, NJDEP consults with affected water suppliers to stay informed and responsive. The drought watch designation serves to inform the public about worsening conditions. It reminds water-supply professionals to closely monitor the situation and update contingency plans if dry conditions persist or worsen. The public is encouraged to use water wisely to help conserve supplies. NJDEP places a focus on voluntary reductions in demand through increased public awareness.
- **Drought Warning** indicates a non-emergency phase in managing water supplies during the early stages of drought. The goal of a drought watch is to prevent severe water shortage that would require declaring a water emergency and enforcing mandatory water use restrictions or bans. During a drought warning, NJDEP may instruct water suppliers to develop alternative water sources or transfer water from areas with more abundant supplies to those with less. Although mandatory water use restrictions are not enforced, the public is strongly encouraged to conserve water in affected regions.
- **Drought Emergency** is the third stage of drought. This stage can only be declared by the governor. Actions taken during a water emergency focus on reducing water demand. Typically, a phased approach to water consumption restrictions is implemented during emergencies. Phase I restrictions usually target non-essential outdoor water use. Although some indirect economic impacts may occur, the initial phases of water use restrictions aim to minimize adverse effects on the economy.

U.S. Drought Monitor

The U.S. Drought Monitor classifies drought severity based on physical indicators and input from local observers (NOAA-NIDIS 2025). It classifies level of drought using the categories shown in Table 7-1.

Table 7-1. U.S. Drought Monitor Classifications

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought—short-term dryness slowing planting and growth of crops or pastures; fire risk above average. Coming out of drought—some lingering water deficits; pastures or crops not fully recovered.
D1	Moderate drought	Some damage to crops and pastures; fire risk high; streams, reservoirs, or wells low; some water shortages developing or imminent; voluntary water-use restrictions requested.
D2	Severe drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.
D3	Extreme drought	Major crop or pasture losses; extreme fire danger; widespread water shortages or restrictions.
D4	Exceptional drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

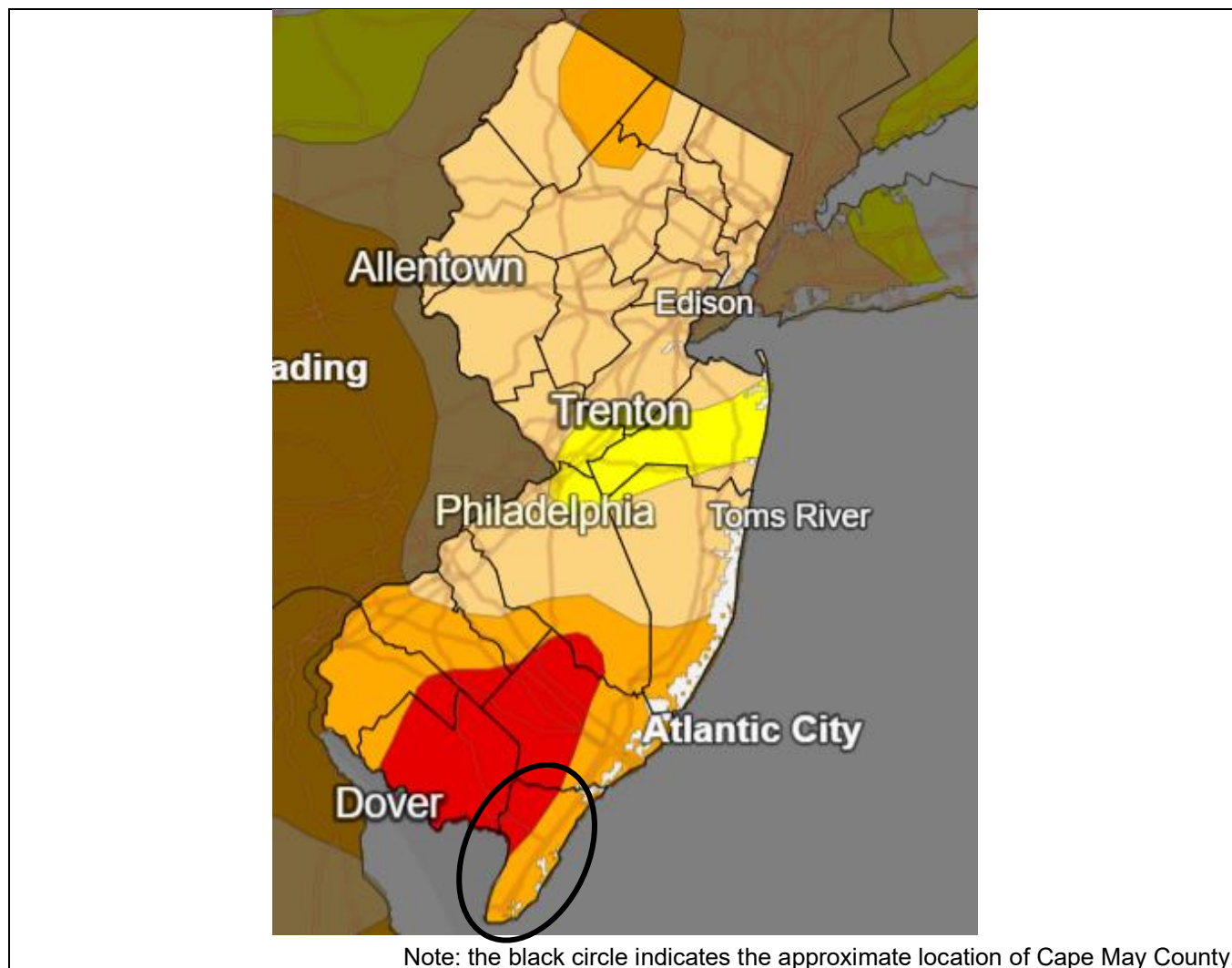
Source: NOAA-NIDIS 2025

Moderate and severe droughts have short-term impacts, typically last less than six months, and primarily affect agriculture and grasslands. Extreme and exceptional droughts have longer-term impacts, typically last longer than six months, and affect hydrology and ecology (NIDIS 2023). Extreme drought can be detrimental to agriculture and

livestock and negatively impact socially vulnerable populations. The U.S. Department of Agriculture (USDA) uses the U.S. Drought Monitor to trigger disaster declaration and loan eligibility when needed (NOAA-NIDIS 2025).

Figure 7-2 shows an example of a U.S. Drought Monitor map for New Jersey, indicating the drought severity levels for the entire state in March 2025. At that time 13.8 percent of New Jersey, including parts of Cape May County, were experiencing extreme drought (D3) conditions (NOAA-NIDIS 2025).

Figure 7-2. U.S. Drought Monitor New Jersey State Map



Source: NOAA-NIDIS 2025

7.1.4 Previous Occurrences

FEMA Major Disaster and Emergency Declarations

Between 1954 and 2025, Cape May County experienced two FEMA-declared drought-related disasters (DR) or emergencies (EM), classified as a water shortage, as shown in Table 7-2. Generally, these disasters cover a wide region of the state; therefore, they may have impacted many counties. Cape May County was included in both declarations (FEMA 2025).



Table 7-2. FEMA Declarations for Drought Events in Cape May County (1954 to 2025)

FEMA Declaration Number	Date of Event	Date of Declaration	Event Type
DR-205	August 18, 1965	August 18, 1965	Water Shortage
EM-3083	October 19, 1980	October 19, 1980	Water Shortage

Source: FEMA 2025

USDA Declarations

The USDA can designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in contiguous counties. Between August 2019 and March 2025, Cape May County was included in one USDA-designated disaster that included drought, as shown in Table 7-3 (USDA 2025).

Table 7-3. USDA Declarations for Drought Events in Cape May County (2019 to 2025)

USDA Declaration Number	Date of Event	Date of Declaration	Event Type
S5348	July 1, 2022 – Present	December 20, 2022	Heat, Excessive Heat, High Temperature, Drought

Source: USDA 2025

Previous Events

Known hazard events that impacted Cape May County between August 2019 and March 2025 are listed in Table 7-4. For events prior to 2019, refer to the 2019 Cape May County HMP.

Table 7-4. Drought Events in Cape May County (2019 to 2025)

Event Date	Declaration or Proclamation Number	Location Impacted	Description
September 17 – December 9, 2019	N/A	Cape May County	U.S. Drought Monitor status was D0 or “abnormally dry” across Cape May County from September 17 – October 14, D1 or “moderate drought” from October 15 - 21, and D0 or “abnormally dry” from October 22 – December 9, 2019.
June 30 – July 13, 2020	N/A	Cape May County	U.S. Drought Monitor status was D0 or “abnormally dry” across Cape May County from June 30 – July 13, 2020
March 18, 2025	N/A	Cape May County	U.S. Drought Monitor reported extreme drought across about 29 percent of the County.

Source: NOAA-NIDIS 2025

7.1.5 Probability of Future Occurrences

Probability Based on Past Events

Information on previous drought occurrences in the County was used to calculate the probability of future occurrence of such events, as summarized in Table 7-5. Based on historical records and input from the Planning Partnership, the probability of occurrence for drought in the County is considered “occasional.”



Table 7-5. Probability of Future Drought Events in Cape May County

Hazard Type	Number of Occurrences, 2000 – 2025	Percent Chance of Occurring in Any Given Year
Drought	24	96.00%

Source: NOAA-NIDIS 2025, USDA 2025

Note: Due to limitations in data, not all drought events occurring between 1954 and 1996 are accounted for in the tally of occurrences. As a result, the number of hazard occurrences is calculated using the number of occurrences between 2000 and 2025

It is likely that droughts will occur across New Jersey and Cape May County in the future. Cape May County will continue to experience direct and indirect impacts of drought and its impacts on occasion, with the secondary effects causing potential disruption or damage to agricultural activities and creating shortages in water supply within communities.

Effect of Climate Change on Future Probability

Droughts have been increasingly common over the past decades. Total annual precipitation has increased, but it falls in more intense events that occur less frequently. With isolated precipitation events, long stretches of dry weather can make drought more likely (Cornell University 2021). In addition, as temperatures increase, the probability for future droughts will likely increase as well.

7.1.6 Cascading Impacts on Other Hazards

Drought can lead to increasing temperatures and evaporation of moisture, which are ideal dry conditions for wildfire events to occur. Dry, hot, and windy weather combined with dry vegetation makes some areas more susceptible to wildfires. Additionally, droughts can lead to the following (NIDIS 2019):

- Long-term damage to crop quality and crop losses.
- Insect infestation leading to crop losses and reduced tree canopy.
- Reduction in the ability to perform outdoor activities, which could result in loss of tourism and recreation opportunities.

7.2 VULNERABILITY AND IMPACT ASSESSMENT

All Cape May County has been identified as the drought hazard area. Therefore, all assets (population, structures, critical facilities, and lifelines) described in the County Profile (Chapter 3) are potentially vulnerable to drought. The following sections provide a qualitative assessment of the impacts of drought in the County.

7.2.1 Life, Health, and Safety

Overall Population

For this plan, the entire population of the County (95,263) is considered vulnerable to drought events. Drought conditions can cause a shortage of water available for human and livestock consumption and can reduce local firefighting capabilities. Social impacts of drought include mental and physical stress, public safety threats (increased threat from forest/grass fires), health threats, conflicts among water users, reduced quality of life, and inequities in the distribution of impacts and disaster relief.



Public health impacts may include an increase in heat-related illnesses, waterborne illnesses, recreational risks, limited food availability, reduced living conditions, effects on air quality, and increased incidence of disease. Some drought-related health effects are short-term while others can be long-term (Centers for Disease Control and Prevention 2021).

Socially Vulnerable Population

Without a quantitative assessment of potential impacts of drought on socially vulnerable populations, the Planning Partners can best assess mitigation options through an understanding of the general numbers and locations of such populations across Cape May County. Table 7-6 summarizes highlights of this information. For planning purposes, it is reasonable to assume that the percentages and distribution of socially vulnerable populations affected by drought will be similar to the countywide numbers.

Table 7-6. Cape May County Socially Vulnerable Populations by Jurisdiction

Category	Cape May County Total		Municipality Highest in Category		Municipality Lowest in Category	
	Number	Percent	Number	Percent	Number	Percent
Population Over 65	26,529	27.8%	Lower (T) 5,517	Avalon (B) 61.5%	Cape May Point (B) 118	Wildwood (C) 15.5%
Population Under 5	4,117	4.3%	Lower (T) 1,111	Dennis (T) 7.7%	Cape May Point (B), North Wildwood (C) 0	Cape May Point (B), North Wildwood (C) 0.0%
Non-English-Speaking Population	1,408	1.5%	Middle (T) 497	Wildwood (C) 7.2%	Avalon (B), Cape May Point (B), North Wildwood (C), Stone Harbor (B), West Wildwood (B), Wildwood Crest (B) 0	Avalon (B), Cape May Point (B), North Wildwood (C), Stone Harbor (B), West Wildwood (B), Wildwood Crest (B) 0.0%
Population With Disability	14,049	14.7%	Lower (T) 3,632	Woodbine (B) 35.8%	Cape May Point (B) 43	Cape May (C) 6.0%
Population Below Poverty Level	8,443	8.9%	Lower (T) 2,369	Woodbine (B) 30.4%	West Wildwood (B) 18	Upper (T) 1.8%

Source: U.S. Census Bureau 2022 ACS Vulnerable Population Totals

The infirm, young, and elderly are particularly susceptible to drought and associated extreme temperatures, due to their age, health conditions, and limited ability to mobilize to shelters, cooling, and medical resources. Vulnerable populations include homeless persons, people over 65 years old, low-income or linguistically isolated populations, people with life-threatening illnesses, and residents with limited access to water. The population over the age of 65 may require extra water supplies or need assistance to obtain water and are more likely to need medical attention.

7.2.2 General Building Stock

No structures are anticipated to be directly affected by a drought event. However, droughts contribute to conditions conducive to wildfires and reduce fire-fighting capabilities. Wildfire fuel tends to be most plentiful in areas where development densities are lowest, which works to reduce losses to the general building stock. Refer to Chapter 13 for the Wildfire risk assessment.



7.2.3 Community Lifelines and Other Critical Facilities

Drought events generally do not impact buildings, but they have the potential to impact agriculture-related facilities, critical facilities, and lifelines that are associated with water supplies, such as potable water used with fire-fighting services. Critical facilities and lifelines in and adjacent to the wildfire hazard areas are also considered vulnerable to drought.

7.2.4 Economy

Water withdrawals are used for potable water and for the commercial, industrial, and mining sectors and power generation. When drought conditions persist with little to no relief, water restrictions may be put into place by local or state governments. These restrictions may include placing limitations on when or how frequently lawns can be watered, car washing services, or any other recreational/commercial outdoor use of water supplies. In exceptional drought conditions, watering of lawns and crops may be prohibited. If crops are not able to receive water, farmland will dry out and crops will die. This can lead to crop shortages, which, in turn, increases the price of food (North Carolina State University 2013).

Increased demand for water and electricity can also result in shortages and higher costs for these resources. Industries that rely on water for business could be impacted the most (e.g., landscaping businesses). Although most businesses will still be operational, they may be impacted aesthetically. These aesthetic impacts are most significant within the recreation and tourism industry. Moreover, droughts within another area could impact the food supply and price of food for residents within the county.

If the governor declares a state of water emergency, NJDEP may impose mandatory water restrictions and require specific actions to be taken by water suppliers. According to the State of New Jersey Water Supply Plan, a water emergency seeks to cause as little disruption as possible to commercial activity and employment (New Jersey Department of Environmental Protection 2017).

7.2.5 Natural Resources

Droughts can exacerbate conditions conducive to wildfires, increase insect infestations, and exacerbate the spread of disease (Intergovernmental Panel on Climate Change 2016). Droughts also impact water resources that are relied upon by aquatic and terrestrial species. Ecologically sensitive areas, such as wetlands, can be particularly vulnerable to drought periods because they are dependent on steady water levels and soil moisture availability to sustain growth. As a result, these types of habitats can be negatively impacted after long periods of dryness (New Jersey Department of Environmental Protection 2017).

Droughts also have the potential to lead to water pollution due to the lack of rainwater to dilute any chemicals in water sources. Contaminated water supplies may be harmful to plants and animals. If water is not getting into the soils, the ground will dry up and become unstable. Unstable soils increase the risk of erosion and loss of topsoil (North Carolina State University 2013).

Drought affects groundwater sources, but generally not as quickly as surface water supplies. Groundwater supplies generally take longer to recover. Reduced precipitation means that groundwater supplies are not replenished at a normal rate. This can lead to a reduction in groundwater levels. Reduced replenishment of groundwater affects streams also. Much of the flow in streams comes from groundwater, especially during the summer when there is less precipitation and after snowmelt ends. Reduced groundwater levels mean that even less water will enter streams when stream flows are lowest (New Jersey Department of Environmental Protection 2021).



7.2.6 Historic and Cultural Resources

The primary impacts on historic resources from drought would be an increased risk of wildfires, which could threaten these assets, and impacts on structure foundations from the shrink-swell cycle of expansive soils. Prolonged drought and seasonal aridity can exacerbate soil deflation and erosion, potentially uncovering previously buried archaeological sites. This exposure increases the vulnerability of these sites to further damage and loss, posing a significant threat to the preservation of cultural heritage (USDA Forest Service 2018).

7.3 FUTURE CHANGES THAT MAY AFFECT RISK

7.3.1 Potential or Planned Development

The State of New Jersey Water Supply Plan indicates seasonal outdoor water use is rising statewide and is attributable to continued suburbanization and increases in residential and commercial lawn and landscape maintenance. Changes in water demands by commercial/industrial users will depend on future development of this water type use and how effectively efficiency techniques are implemented (New Jersey Department of Environmental Protection 2017).

7.3.2 Projected Changes in Population

Projected population increases in Cape May County can exacerbate the impacts of drought in several ways. A larger population will lead to higher demand for water for residential, agricultural, and industrial uses, straining existing water supplies and making management during drought conditions more challenging (NEEF 2024). This increased demand will also put additional pressure on water infrastructure, leading to more frequent breakdowns and maintenance issues, complicating water distribution. With more people relying on the same water sources, the risk of water shortages during prolonged dry periods increases, leading to stricter water use restrictions and competition for limited resources. Additionally, increased population density can lead to more development and urbanization, reducing natural landscapes that help recharge groundwater and maintain ecological balance, further reducing water availability during droughts.

Higher population density can also increase the risk of wildfires, as more human activity can lead to accidental fires, which are exacerbated by drought conditions, leading to more frequent and severe wildfires that threaten both natural and developed areas (WRI 2024). Overall, the projected population growth in Cape May County will likely intensify the challenges associated with managing water resources and mitigating the impacts of drought. Chapter 3 (County Profile) includes a more thorough discussion about population trends for the County.

7.3.3 Climate Change

Most studies project that the State of New Jersey will see an increase in average annual temperatures. Additionally, the state is projected to experience more frequent droughts, which may affect the availability of water supplies. Agricultural needs may increase if the climate grows warmer but may decrease if more efficient irrigation techniques are adopted broadly or if precipitation increases. A decrease in water supply may increase the County's vulnerability to structural fire and wildfire. Critical water-related service sectors may need to adjust management practices and actively manage resources to accommodate future changes.