

Droughts

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General Information

Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems. The severity of drought is measured by the Palmer Index in a range of 4 (extremely wet) to -4 (extremely dry). The Palmer Index incorporates temperature, precipitation, evaporation and transpiration, runoff and soil moisture when designating the degree of drought.

There is some disagreement over the primary meteorological causes of drought. Theories include sunspots, volcanic dust, land alterations, ocean currents, and atmospheric pollutants.

Drought affects water levels for use by industry, agriculture and individual consumers. Water shortages affect fire fighting capabilities through reduced flows and pressures. Drought also affects power production. Much of Washington state's power is produced by hydro-electric dams. When water levels drop, electric companies cannot produce enough power to meet demand and are forced to buy electricity from other sources.

Vulnerability

Nearly all areas of Washington are vulnerable to drought. In every drought, agriculture has felt the impact, especially in non-irrigated areas such as dryland farms and range lands. Other heavy water users, such as landscapers, are also negatively impacted. Water related activities of residential users may be restricted. And because much of the county's power comes from hydroelectric plants, droughts often cause both water and power shortages. Therefore, heavy power users are also affected.

Fifteen significant droughts affecting the Puget Sound lowlands since 1900 have been documented. Drought conditions have differing impacts on the community during different times of the year. A drought during the winter that limits snow pack might have a more severe impact on the community than one in the late summer when reservoirs can be used to mitigate problems. There are also certain times during a growing season when crops are better able to cope with drought conditions than others. Therefore, crop yields can vary greatly depending on when in the growing season the drought occurs.

Effects

It is often difficult to recognize a drought before being in the middle of it. Droughts do not occur spontaneously, they evolve over time as certain conditions are met. Therefore it is difficult to measure the losses and gains due to a drought.

The most direct impact of drought is economic rather than loss of life or immediate destruction of property. Droughts impact individuals, the agricultural industry, and other related sectors. For example, a lack of snow-pack has forced ski resorts into bankruptcy. Additionally, there is increased danger of wild land fires associated with most droughts. Millions of board feet of timber have been lost, and in many cases, erosion occurred which caused serious damage to aquatic life, irrigation, and power production by heavy silting of streams, reservoirs, and rivers. Often times drought is accompanied by extreme heat. When temperatures reach 90 degrees and above, people are vulnerable to sunstroke, heat cramps and heat exhaustion. Pets and livestock

are also vulnerable to heat-related injuries. Crops can be vulnerable as well. In past Washington state droughts, wheat has been scorched, apples have sunburned and peeled and yields were significantly lessened.

Conclusion

Throughout the years the impact of droughts on King County has been lessened through the development of new agriculture and fire fighting techniques. The increasing population and new industries will continue to tap resources and make the area susceptible to drought conditions. Public education programs on water conservation and fire prevention are important for mitigating future losses.