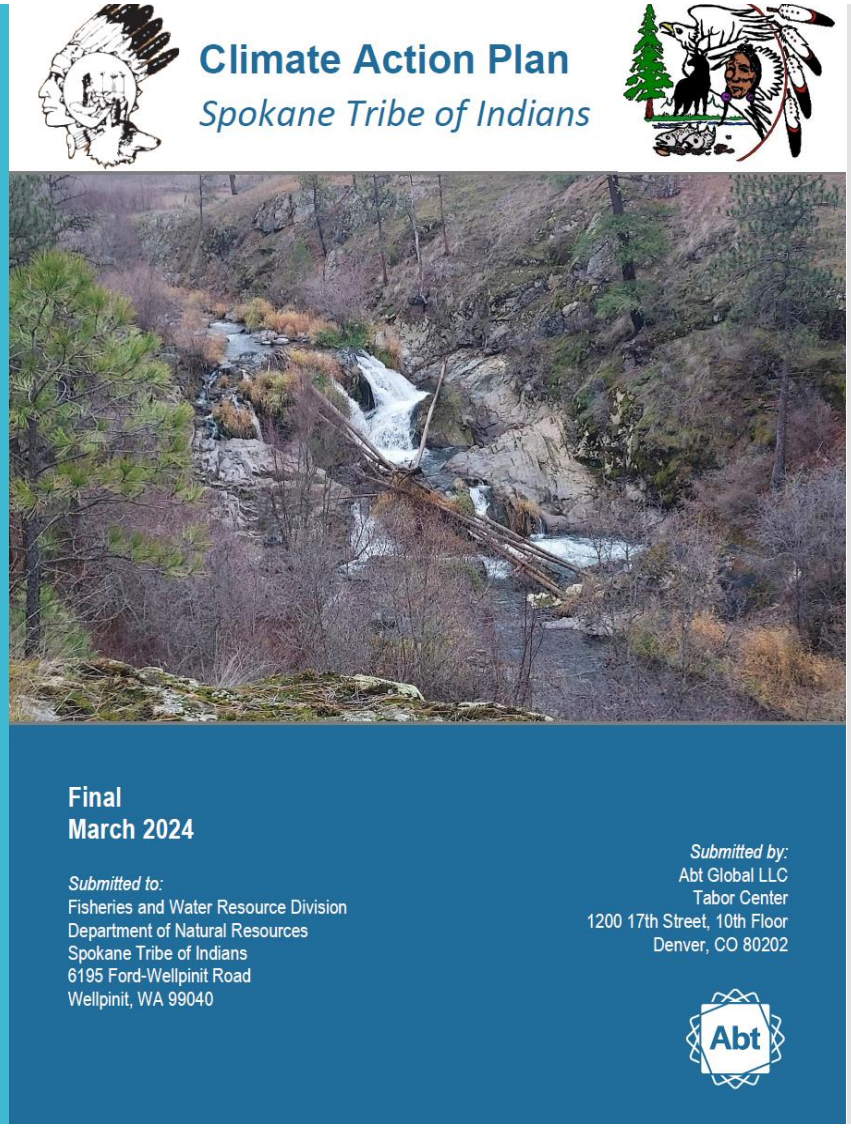
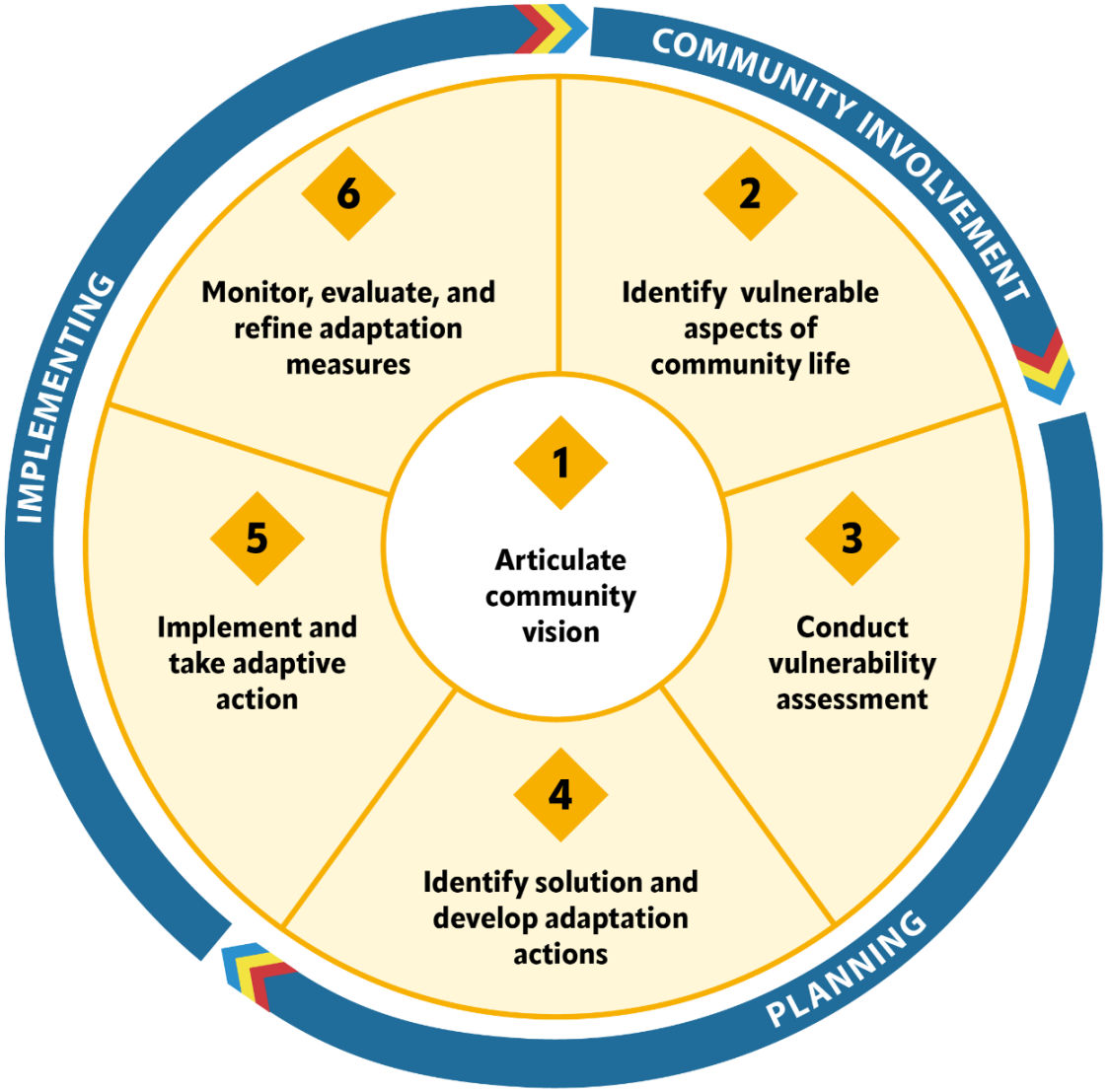
Spokane Tribe Climate Adaptation Planning



Climate action planning process

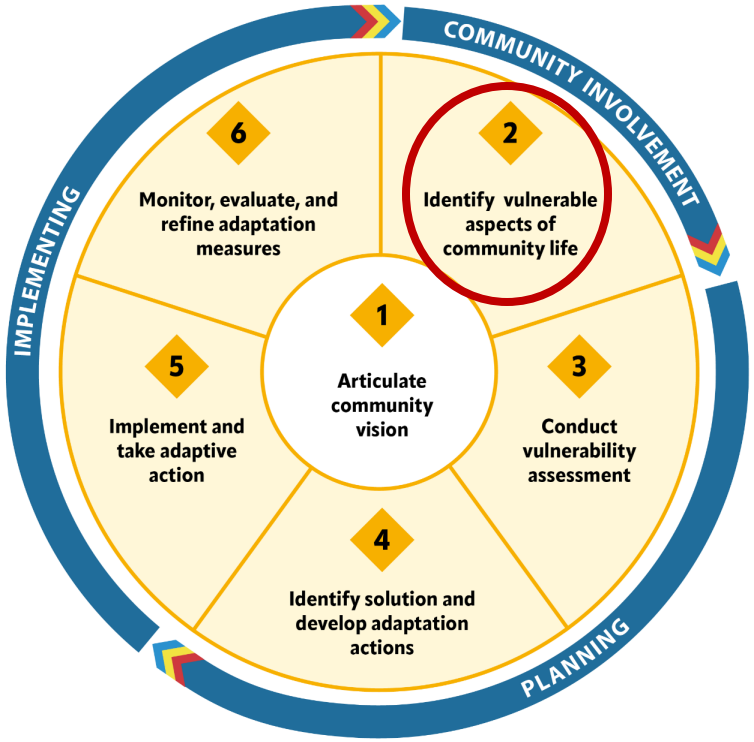


Community Involvement

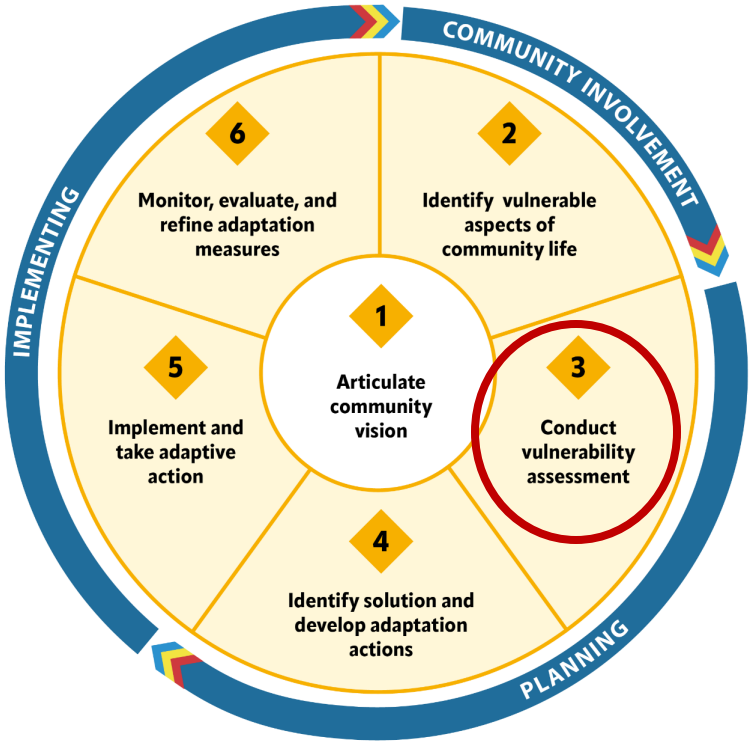
Natural Resources Manager Workshop
- ~20 DNR staff members and managers
  - Focused on strategies for climate adaptation and mitigation

Hosted 3 community workshops
- Focused on community vision

Community Survey
- 90 survey responses
  - 50 online, 40 in person



Community Vision



Planning – Conduct Vulnerability Assessment

The Fourth National Climate Assessment (NCA4)

Assesses the science of climate change and variability and its impacts across the United States. Within the NCA4, we relied primarily on Chapter 24 focused on the Northwest region (May et al., 2018) and on Chapter 15 focused on Tribes and Indigenous Peoples (Jantarasami et al., 2018).

The Climate Toolbox

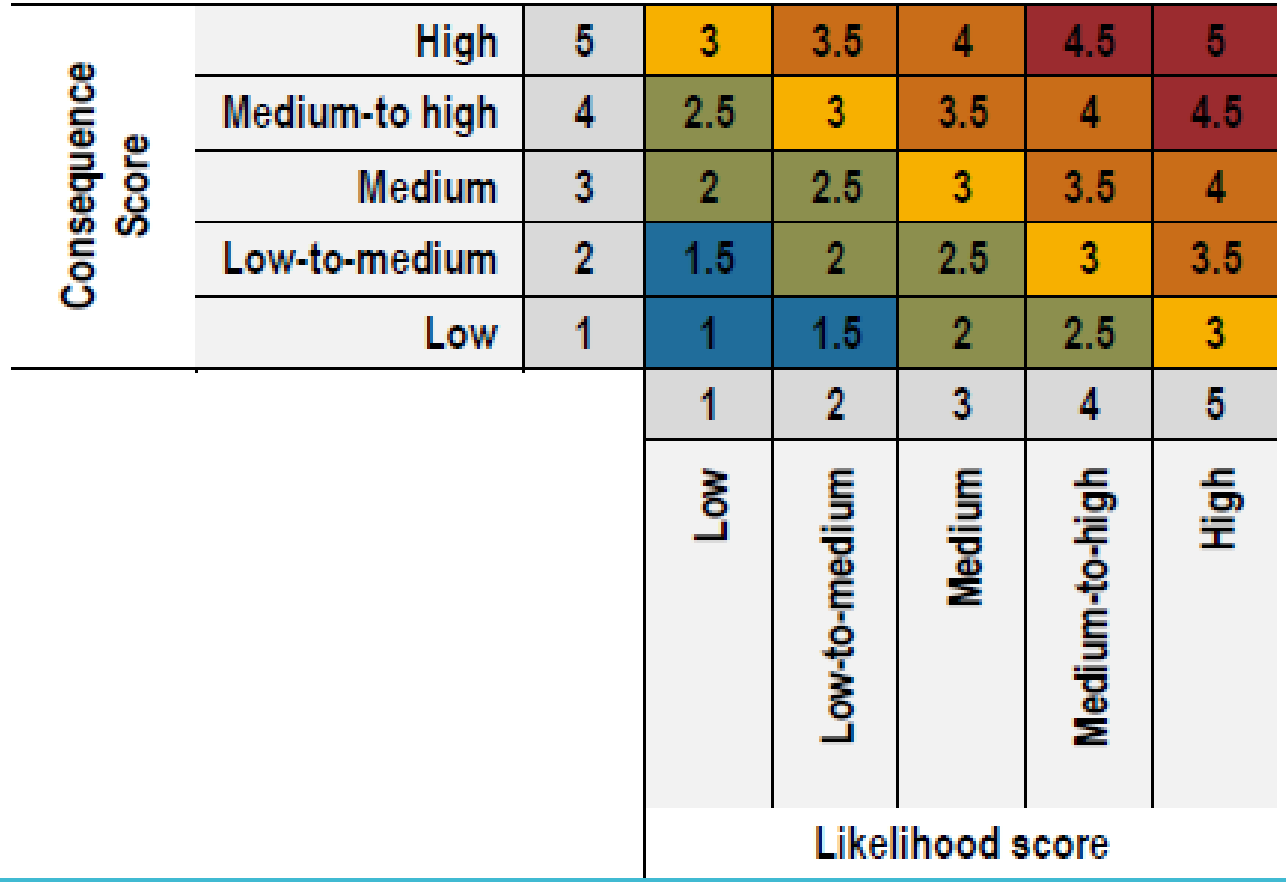
Used to understand historical climate variability and future model projections for the Spokane Indian Reservation. For future climate projections, we largely relied on the Tribal Climate Tool (Krosby et al., 2018).

The Spokane Climate Project

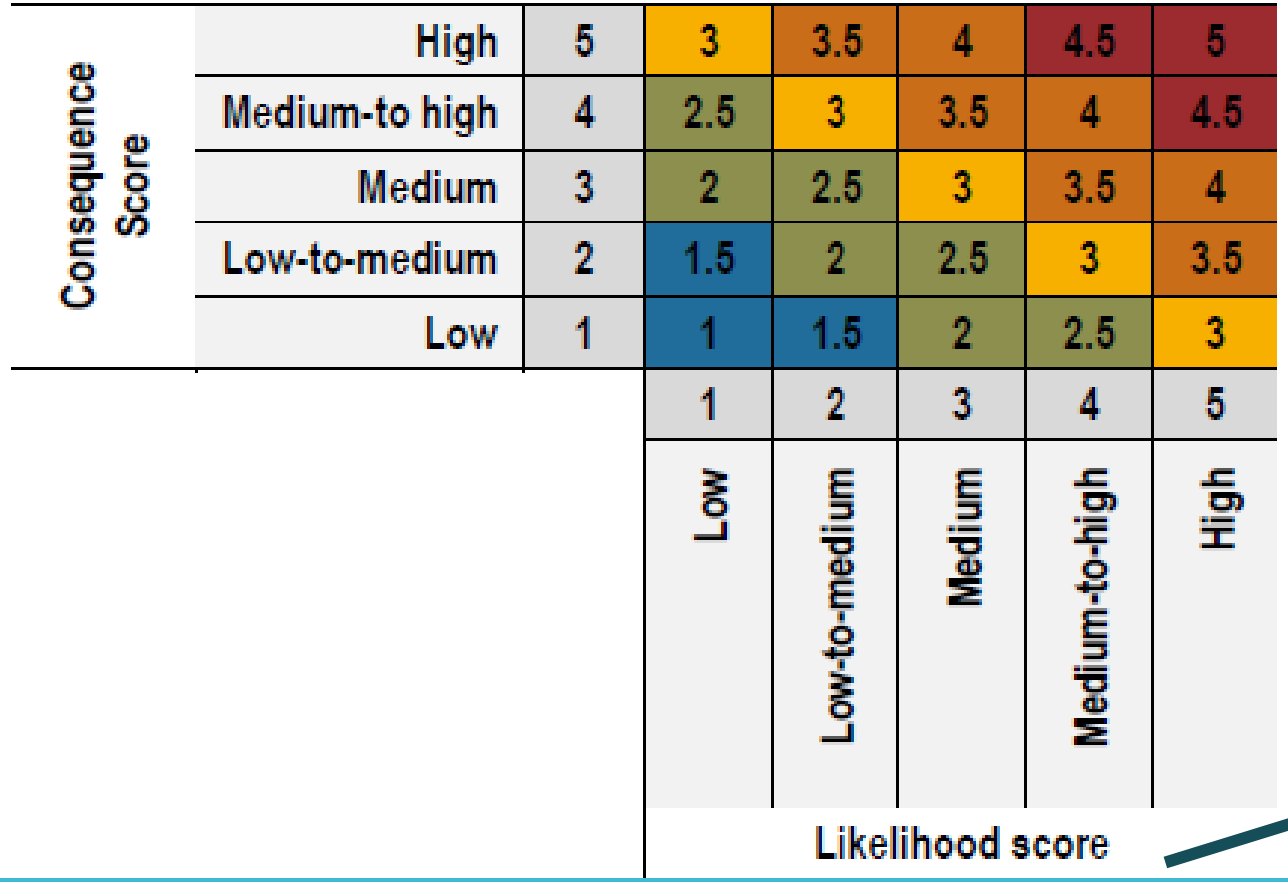
Identifies climate and weather impacts faced by the Spokane community as well as resiliency actions designed to keep the community, its economy, and natural systems healthy and prosperous (Spokane Climate Project, In press).

The U.S. Environmental Protection Agency's (EPA) Climate Indicators

show long-term trends for greenhouse gases (GHGs), weather and climate, oceans, snow and ice, health and society, and ecosystems (EPA, 2023a–i).



Climate risk matrix



Climate risk matrix

Climate risk matrix

Severity of impact to community vision

(determined by input from DNR and community members)

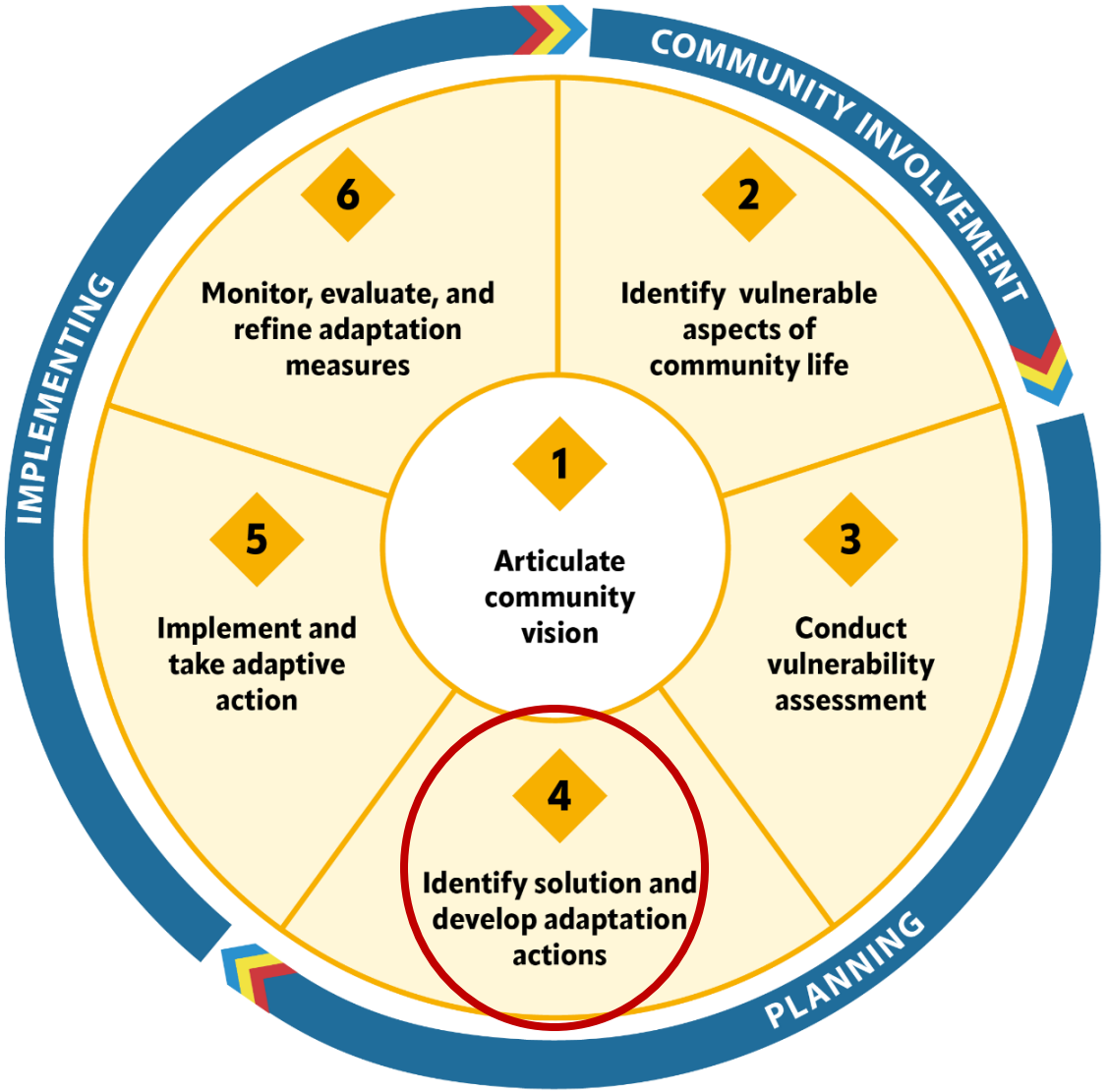
Consequence Score							
	High	5	3	3.5	4	4.5	5
	Medium-to high	4	2.5	3	3.5	4	4.5
	Medium	3	2	2.5	3	3.5	4
	Low-to-medium	2	1.5	2	2.5	3	3.5
	Low	1	1	1.5	2	2.5	3
			1	2	3	4	5
			Low	Low-to-medium	Medium	Medium-to-high	High
			Likelihood score				

Vulnerability	Likelihood score[1]		Consequence score[2]	Overall climate risk
Natural resources				
Maintaining wildlife species, including culturally important species, depends on healthy forest habitat. Habitat used by wildlife species could shift to higher elevations and beyond the boundary of the reservation.	Increased temperature	High	High	High
	More severe and frequent extreme heat	High		
	More severe and frequent wildfires	High		
	More severe and frequent droughts	Medium		
	Changes in precipitation	Low		
	Increased storms and flooding	Medium-to-high		
	Increased landslides	Medium		
	Reduced snowfall and snowpack	Medium-to-high		
	Changes in stream temperatures	Medium-to-high		
	Changes in stream flows	High		
The Tribe relies on timber management for revenue and employment, and timber is affected by drought, pests and disease, and wildfires.	Increased temperature	High	Medium-to-high	Medium-to-high
	More severe and frequent extreme heat	High		
	More severe and frequent wildfires	High		
	More severe and frequent droughts	Medium		
	Changes in precipitation	Low		
	Increased storms and flooding	Medium-to-high		
Gathering firewood requires healthy forests, and hardwood tree species preferred for firewood could be affected by drought, pests, or disease.	Increased temperature	High	Low	Low-to-medium
	More severe and frequent extreme heat	High		
	More severe and frequent droughts	Medium		
	Changes in precipitation	Low		
	Increased storms and flooding	Medium-to-high		

Vulnerability	Likelihood score[1]		Consequence score[2]	Overall climate risk
Community health and sovereignty				
Elders and other community members who are ill or have compromised respiratory systems may be especially susceptible to health problems associated with poor air quality. Wildfires and extreme heat events can decrease air quality.	Increased temperature	High	High	High
	More severe and frequent extreme heat	High		
	More severe and frequent wildfires	High		
Outdoor cultural activities, such as powwows, and sports are important for physical health and well-being and are a means for youth to interact and build relationships. Youth and community members engaging in outdoor activities and sports are exposed to heat or poor air quality.	Increased temperature	High	High	High
	More severe and frequent extreme heat	High		
	More severe and frequent wildfires	High		
Outdoor ceremonial practices depend on safe air quality. Wildfires and extreme heat events can decrease air quality.	Increased temperature	High	Medium-to-high	High
	More severe and frequent extreme heat	High		
	More severe and frequent wildfires	High		
Home and community gardens are an important source of fresh, healthy food. Community gardens rely on sufficient water quality and quantity.	More severe and frequent wildfires	High	High	High
	More severe and frequent droughts	Medium		
	Changes in precipitation	Low		
	Increased storms and flooding	Medium-to-high		
	Reduced snowfall and snowpack	Medium-to-high		
Traditional crops are most productive under specific climate conditions, and some traditional crops are less productive under high temperatures and drought conditions.	Increased temperature	High	High	High
	More severe and frequent extreme heat	High		
	More severe and frequent droughts	Medium		
Traditional crops are most productive under specific climate conditions, and crops can be damaged by extreme weather events, such as hail, wind, storms and flooding, and wildfires.	More severe and frequent extreme heat	High	High	High
	More severe and frequent wildfires	High		
	More severe and frequent droughts	Medium		
	Increased storms and flooding	Medium-to-high		
	Increased landslides	Medium		
Community buildings, homes, and infrastructure are located in areas at risk wildfire.	More severe and frequent wildfires	High	High	High

Planning – Develop Adaptation and mitigation Actions

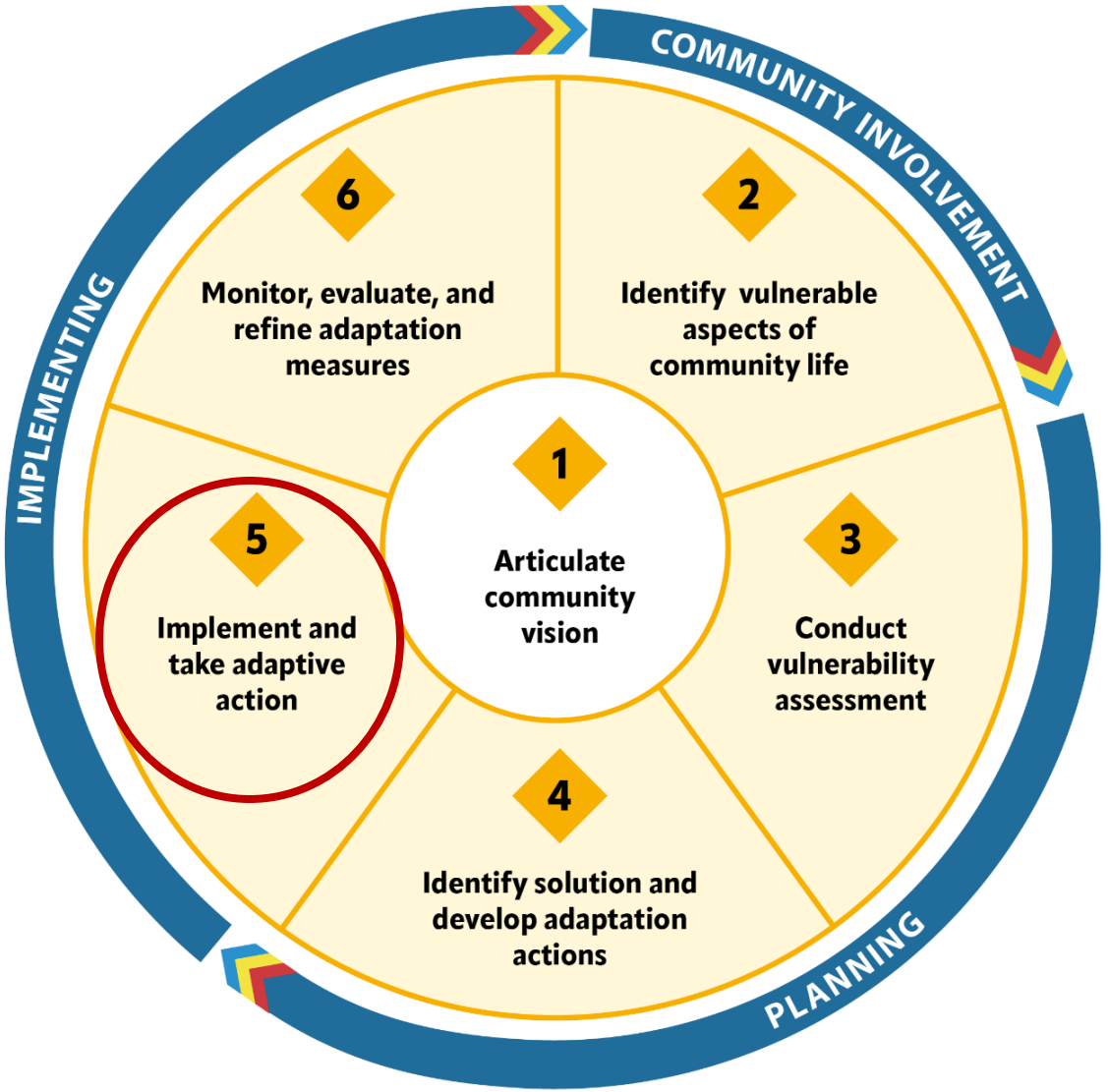
Climate Resiliency Planning Workshops with STOI staff and community members



Adaptation strategies and actions	Responsible department or entity
Natural habitats	
Create resilient forest habitats to maintain and enhance species and structural diversity • Improve tree species' resistance to bark beetles and other biological stressors through tree thinning • Restore fire to fire-adapted ecosystems by expanding the prescribed burn program • Manage towards species that are likely to have greater fitness in the future • Support assisted migration to introduce species and genotypes that will be more suited to a warmer and drier climate • Encourage the use of improved logging systems that result in less ground impact and preserve the water absorption and holding capacity of the soil	DNR Forest Management Program, Fire Management Program, and Spokane Tribal Enterprise
Maintain wildlife species and their habitat under changing conditions • Rehabilitate and restore previously burned or fragmented areas for wildlife • Manage food, water, and cover to align with expected future conditions • Monitor habitat characteristics and wildlife trends	DNR Wildlife Program
Protect the shrub-steppe ecosystem and its closely associated species • Facilitate shrub-steppe range shifts • Implement invasive removal and replanting of native shrub-steppe species • Monitor the shrub-steppe ecosystem	DNR Wildlife Program and Range Management Program
Control the expansion of invasive species in the face of climate change • Restore disturbed areas to limit invasive vegetation and noxious weeds • Implement aquatic invasive species removal programs	DNR-wide

Implementation! (FINALLY)

Secure funding, take adaptive action



Implementation

Adaptation, mitigation, resilient planning

Habitat Restoration

- Currently working on riparian and in-stream habitat restoration
- Planned LWD and BDA installations
- Native plant nursery/greenhouse

Wildfire mitigation and prevention

Applied for CWDG to develop fire resilient infrastructure

Working to extend fuels mitigation program and increase burning program

Energy Sovereignty

- Solar installations on Tribal admin buildings, fish hatchery, and homes
- Western Nuclear Solar Farm Feasibility Study

Looking Forward

- SIHA microgrid
- EV charging infrastructure
- More sustainable water sources for Wellpinit
- Outreach/education, work with schools
- In-home air filters
- Tribal fleet upgrades

Questions?

Calvin.fisher@spokanetribe.com