Yakama Nation Climate *Action* Plan

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Yakima Basin Science and Management Conference

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General Strategy

Phase 1
Provides Direction

Phase 2
Action Plan

Phase 3
-Action Proposals
-Implementation
-Ongoing Assessments

Phase 4
We save the world from devastation - there is love, peace and prosperity for all.

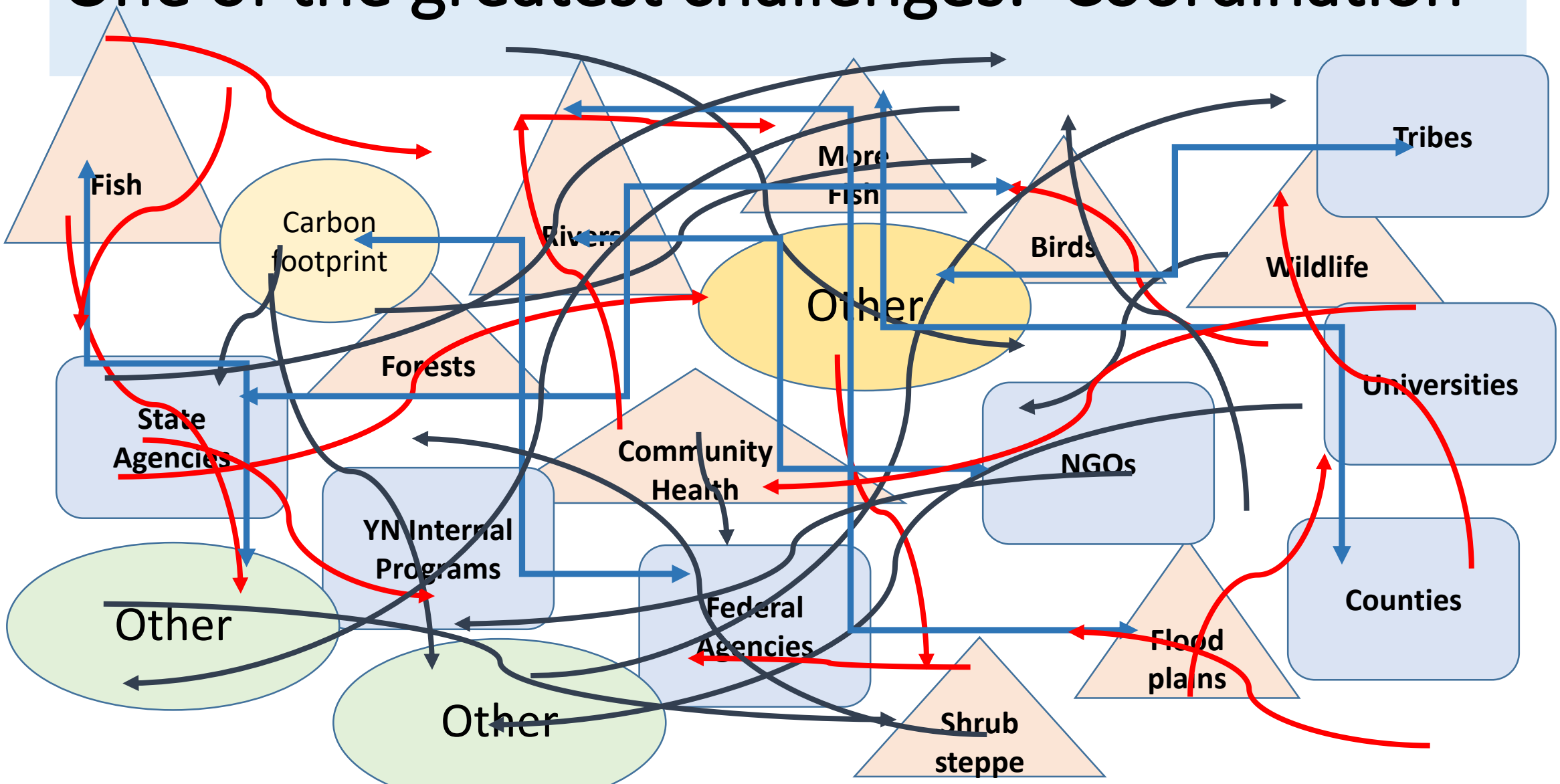
The Take Home

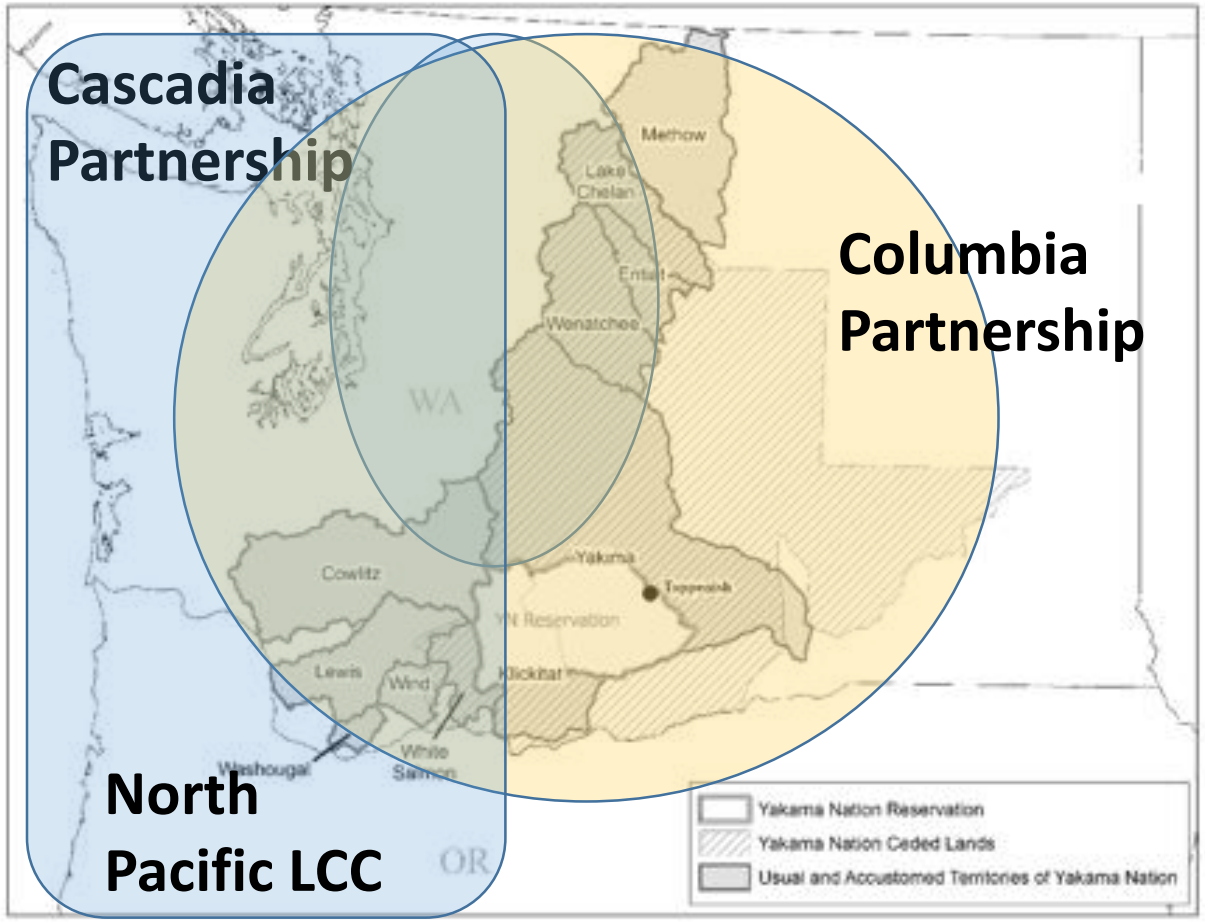
Our Phase 2 *Initial* **Action Plan** is anticipated to be "**complete" next winter**. (1) It is a synthesis, (2) oriented towards Actions and (3) written to our tribal members & leadership. Not a scientific document.

Next couple years - only a beginning –
developing a community
and a framework
or long-term discussions.

Important goal of Phase 2 is consensus of important actions and Phase 3 is to "**institutionalize**" Regional Action Implementation.

One of the greatest challenges: Coordination





Map 1. The territories of the Yakama Nation, including the ceded lands and the Yakama Nation reservation.

Climate Adaptation Plan for the Territories of the Yakama Nation

APRIL 2016

Table of Contents

Posted on the YN and CRITFC Websites

DRAFT Phase 2 Table of Contents

1) Introduction

- *Background on Yakama Nation*
- *Scope of Work – Future Direction*
- *Goals and Objectives*

2) Climate Change in the Territories of the Yakama Nation

- *Potential Impacts by Sector (overview - summary)*
- *Vulnerability Assessment (overview - summary)*

3) Assessing Vulnerability ***(collaboration and methods)***

- *Community Resources*
- *Natural Resources*

4) Estimated Future Impacts and Priority Actions

- *Community Resources*
  - *Monitoring Framework*
- *Natural Resources*
  - *Monitoring Framework*

5) Technical Appendices

DRAFT Technical Appendices *(the technical work)*

-Vulnerability Assessment Methods and Results

-Habitat Types

-Focal Species and Geographic Scope

-Technical References

Again, we will be using existing references - some new information.

What we are missing?

- Carbon footprint
- Energy Efficiency
- Alternative Energies
- Fossil Fuel Use and Transportation
- Tax Incentives for Solar – Wind
  - Geothermal – Other sources

Technical Objectives?

Coordination / ID of:

1. **Actions**
2. Critical Uncertainties
3. Critical Data Sets
4. Metrics for Future Monitoring

Continued Development:

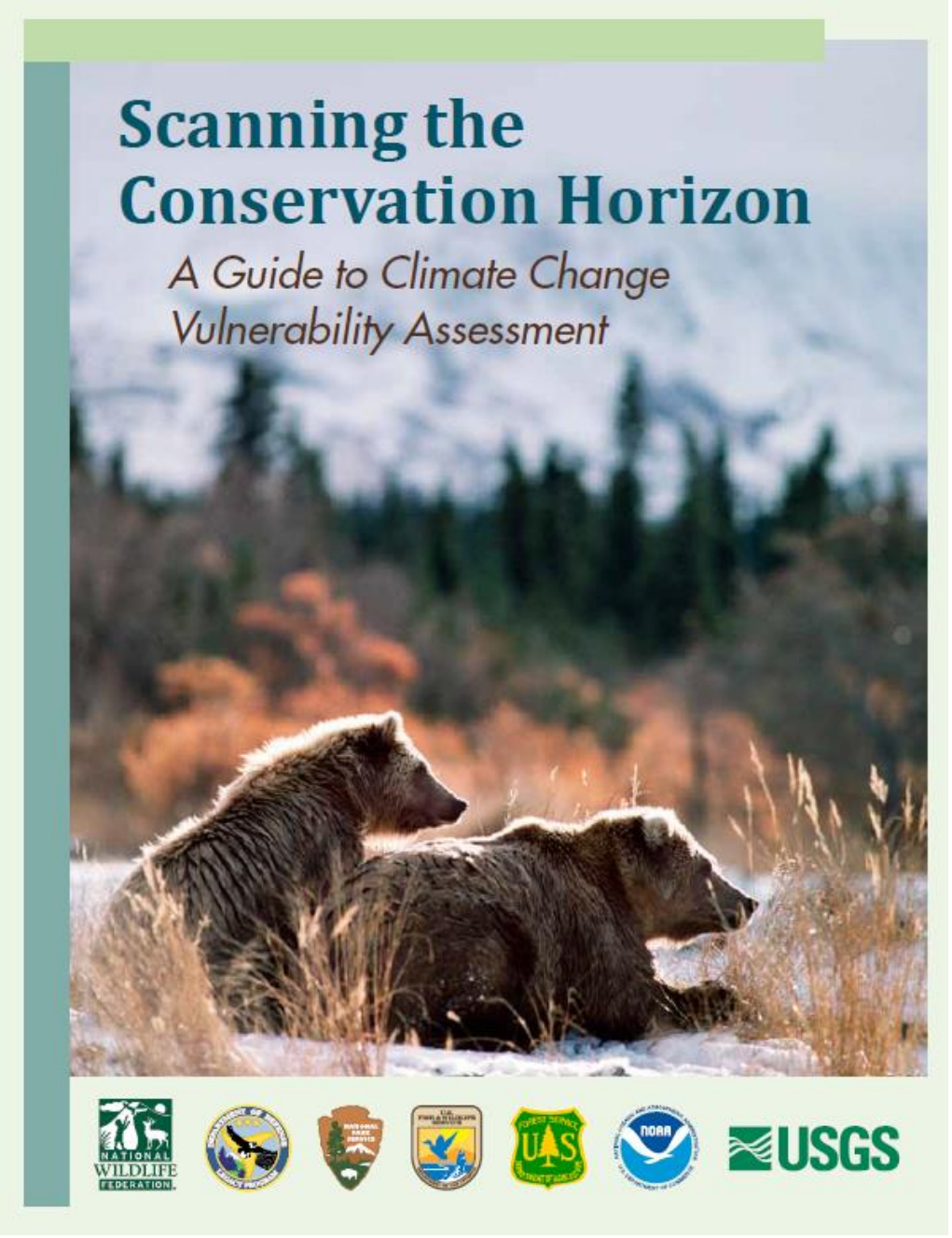
-Increase collaboration for action development, monitoring.

-common, regional analysis methods,

-common datasets and reporting metrics,

-institutionalization of actions and future assessments.

(a lot of this is already happening)



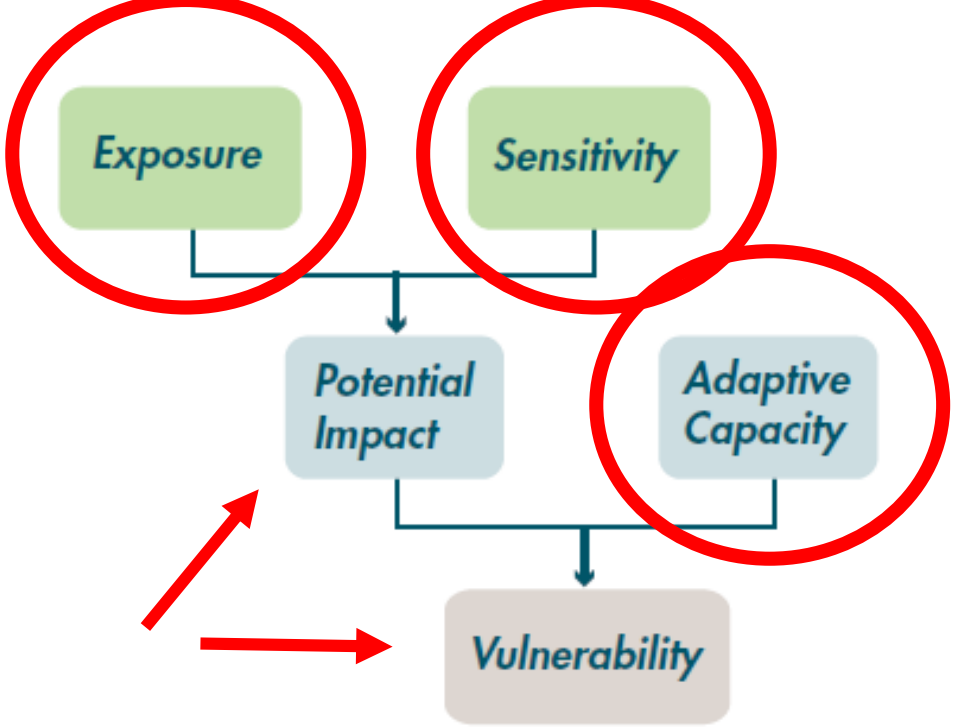


Figure 2.1. Key components of vulnerability, illustrating the relationship among exposure, sensitivity, and adaptive capacity.

Vulnerability + Risk to Tribal Culture from Loss
=
Priority for Actions

Many of these we already know –
we are building a case, documenting – developing actions.

Funded BIA Objectives (contract)

1. Evaluate **vegetative responses** to CC in the **forested areas** of the Yakama Nation Forest.

2. Evaluate **vegetative responses** to CC in the **shrub-steppe and range lands** within the Yakima Subbasin.

3. Evaluate **responses of wetlands and meadows** to CC within the reservation lands of the Yakama Nation.

4. Evaluate the potential of biological (beaver dams) and constructed (low-head check dams) **low-cost water retention structures** for increasing water storage on the landscape.

5. Evaluate **salmonid fisheries responses** (life history, abundance and distribution) to anticipated changes in water temperature and flow from environmental projections of climate change.

Ecosystem Habitats

Riverine

Riparian / Floodplain

Wetlands

Shrub-steppe - Rangelands

Forests – High Elevation

Forests – Dry, Fire Adapted

Ecosystem Processes

Aquatic Connectivity

Hydro-function

Vegetative Connectivity

Natural Fire Regime

Insects / Forests

Still adding a few species to round out major taxa. (Reptiles, Inverts for example)
Many of these come from the GNLCC and CBPF.
Glad to add a few more – Based on interest from various partners.

Focal Species

Salmon – Steelhead

Lamprey, Tail frog

Mink, Otter, rabbits

Grizzly – Black Bear

Mule deer – Elk - Antelope

Coyote – Wolf

Quail, Pheasant, Eagles, Hawks

Sage Sparrow, Sage Grouse, Sage Thrasher

White Headed Woodpecker

Cottonwood

Huckleberry, Current, Service berries, Chokecherry, Huckleberries, roots (Coos, celery, camas, bitterroot)

Focus really is on
-First Foods
-Apex species
-Key Indicators

3-Steps

1. **Vulnerability Assessment.**
   - ID Elements for analysis within Sectors.
   - ID Factors of Vulnerability for each Focal Species / Habitat.
   - Evaluate Exposure and Sensitivity (-2, 0, +2; [H-M-L]).
2. **Describe Objectives**
   - Provide Rationale – likely focusing on “foreseeable future”.
3. **Link Ongoing – Additional Actions to Vulnerability.**

Task 1: Compartmentalize

ID Factors of Vulnerability
Primary Exposures
and Sensitivities.

Table 1: Summary of key concepts necessary to perform Step 1 of the Framework process.

A way to compartmentalize hypothesis statements that lead to unique actions / strategies.
Recognize overlap of each Factor, Exposure – but can't let the weeds obscure the view of the landscape.

Conservation Target	**Salmonids: Summer Steelhead**
Habitat Type	**Riverine**
Related Habitat Types	Upland Forests, Riparian Floodplain
Geographic Scope	Mid-Columbia ESU (DPS) as described by NOAA (reference).
Factor of Vulnerability	**Habitat Suitability**
Primary Exposure (Physical)	Water Quality (sediment, turbidity, temperature, toxics) Flow Timing Flow / Runoff Volume Upland Contributions (sediment)
Factor of Vulnerability	**Competition / Species Interactions**
Sensitivities	Inter-species Intra-species Predation - Prey Disease
Factor of Vulnerability	**Connectivity**
Sensitivities	Genetic Connectivity (reproduction) Demographic Connectivity (distribution)

EXAMPLES:

Statements for Factors of Vulnerability

--Habitat Suitability,
--Species Interactions,
--Connectivity

Table 3: Example of integration of Framework Concepts. Step 1: Assess Vulnerability						Summer Steelhead Middle Columbia DSP
Key Factors of Vulnerability	**Habitat Suitability**: To what extent will CC alter habitat suitability for the population?	*Score*	**Threats from Competition / Species Interaction or Composition:** To what extent will CC effect species interactions?	*Score*	**Connectivity**: To what extent will CC alter the degree of connectivity of the population to a larger network of populations and suitable habitat?	*Score*
Climate Related Questions - Considerations	**Water Temperature – High (Aug-Sept)**	-1	**Inter-species Competition / Interactions**	-1	**Genetic Connectivity (reproduction)**	?
	Water Temperature – Seasonal	0	**Intra-species Competition / Interactions**	-1	**Demographic Connectivity (distribution)**	-1
	Flow – Peak Timing	-1	**Predation - Prey**	?	**Other**	

Habitat Suitability
To what extent will CC alter habitat suitability for the population?

Elevated Summer Water Temperature (July – Mid-September)
Stream temperatures are expected to increase to levels resulting in changes in habitat availability or suitability. *(Water temperature changes may cause direct mortality or improved survival to the target population.)*

Elevated Seasonal Water Temperature (Late Winter – Summer)
Average water temperatures are projected to increase over one or more seasons of the year.

Increased Flood Frequency and Higher Peak Flows (Winter – Spring)
There will be increased flood frequency and higher peak flows causing habitats to be changed, degraded or destroyed.

The results of these discussions are then prioritized, summarized, with most going into the Appendix.

The gist of the thought (Vulnerability) goes into main document to support Action Plan.

Step 2: Goals and Objectives

- Whose goals – whose objectives??
- Obvious need for agency collaboration.
- Must consider longer-term potential issues with near-term priorities.

- Many will come from existing documentation – but need to keep unique objectives in mind while developing Step 1.
- Step 3: Use of the Adaptation Library and collection of actions identified by other agencies – entities.

Recommendation for CBPF Work Plan and Suggested Timeline	OCT	DEC	MAR	JUN	SEP	DEC	MAR
Tasks							
Prepare – Agree to Work Plan	X						
Define Work Groups and Members	X						
Species Identified and Format of Analysis		D	F				
Technical Assessments		X	→	→	D	F	
CC Vulnerability and Risk Summaries (1-2 pagers)			D	F			
Complete Vulnerability and Risk Tables for Key Species / Habitats				D	F		
Integration and Prioritization: Assessment Needs, Strategies (Local Actions) and Monitoring Framework					D1	D2	F

Technical Workshops

NEXT STEPS: Work with partners – develop Vulnerability Assessment, develop narratives. Consolidating priority actions.

We do not forget why we are doing this….

Questions and Discussion