Summary of HPAs Issued in 2017

Pat Chapman

Regulatory Services Coordinator

For

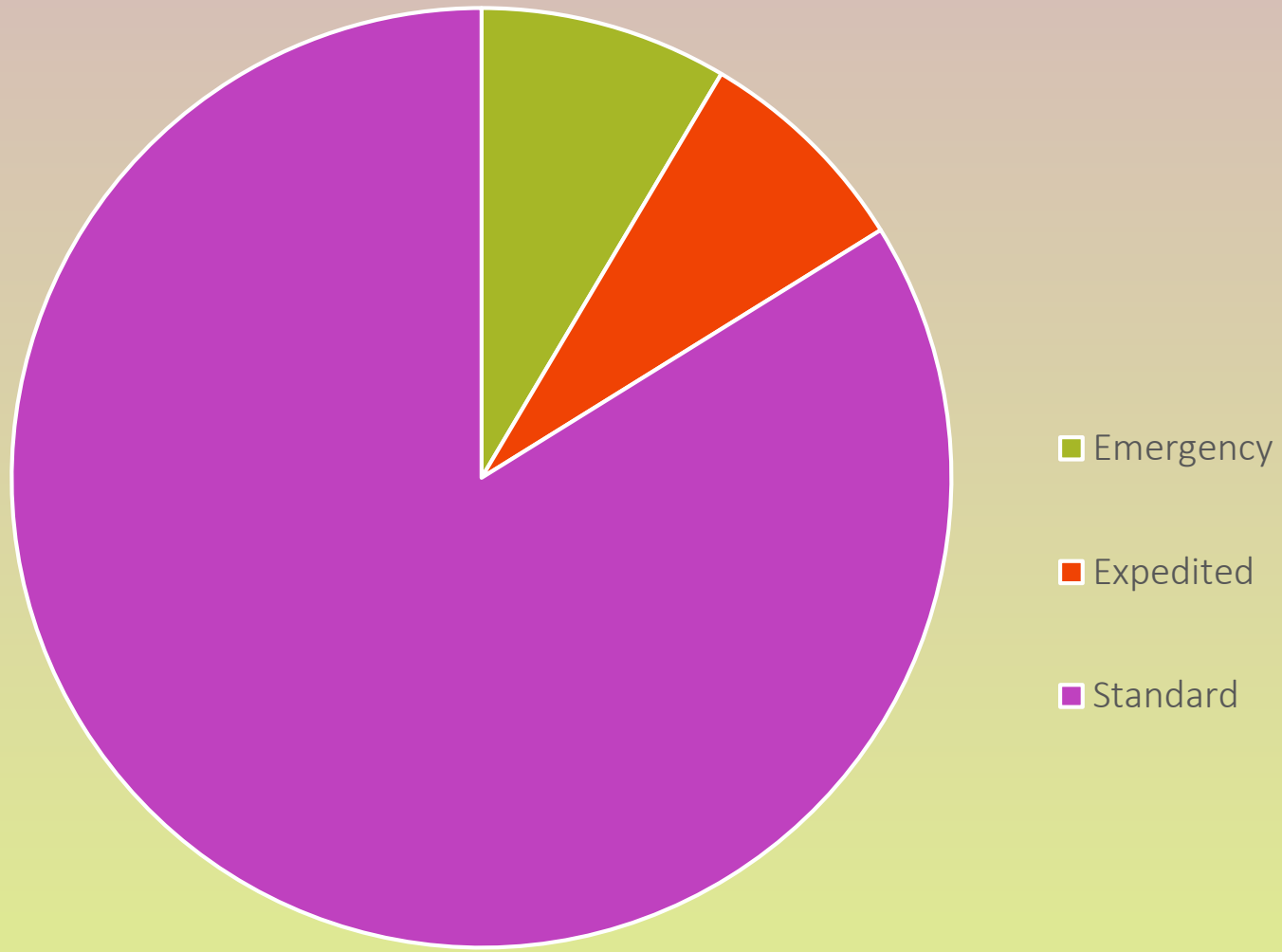
Hydraulic Code Implementation Citizen Advisory Group

2017 HPAs

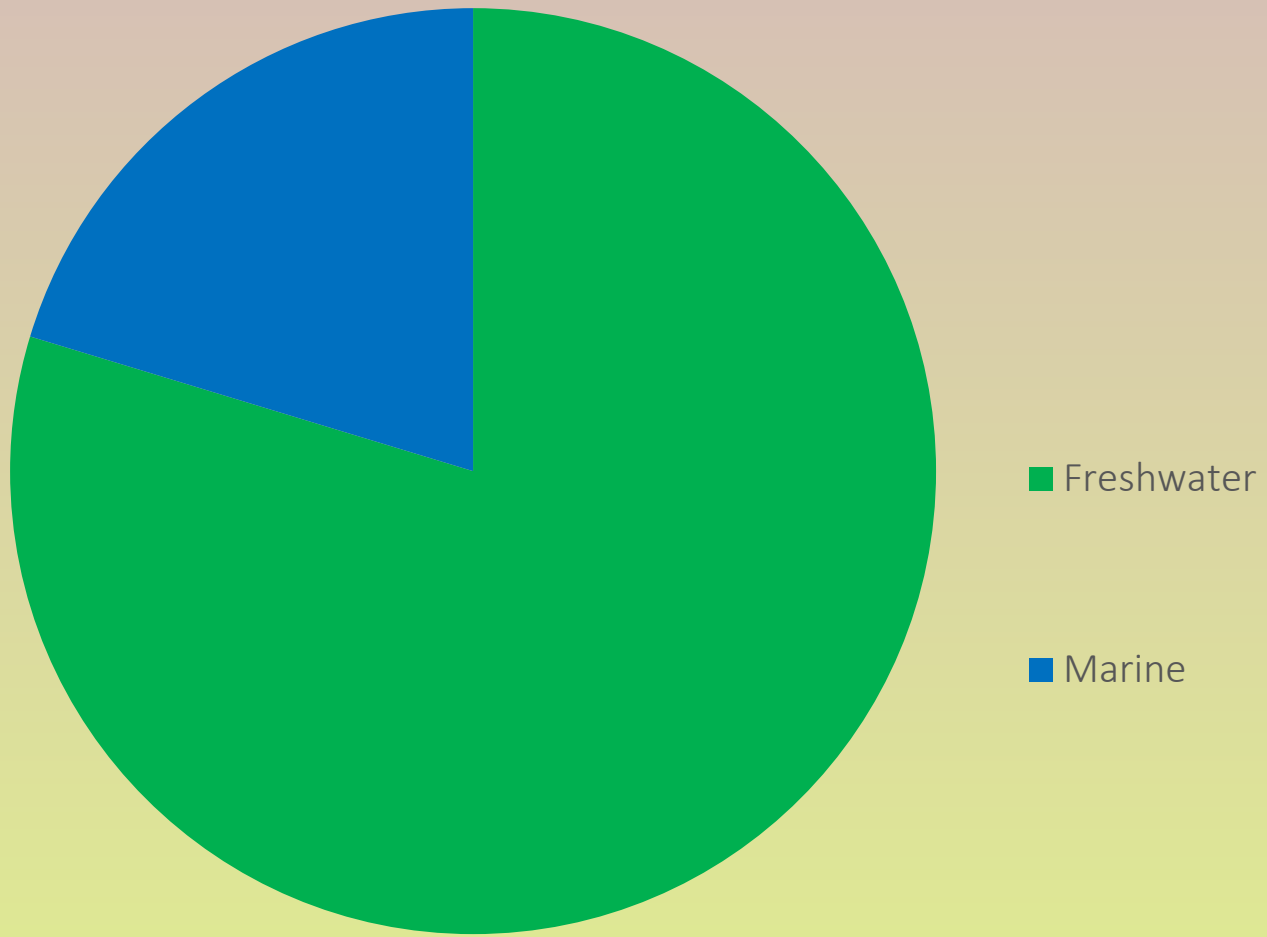
- 2,463 HPAs Issued
  - 2,203 Original HPAs
  - 260 Major Modifications
    - 273 Minor Modifications
- 5 Denials Issued
  - Beaver pond leveler
  - Pile splicing
  - Bridge replacement
  - Statewide dryland dredging
  - Culvert slip lining

- 83 HPAs issued to applicants w/o email addresses
- 97 applications withdrawn prior to HPA issuance
- 52 applications closed due to inactivity

HPA Types



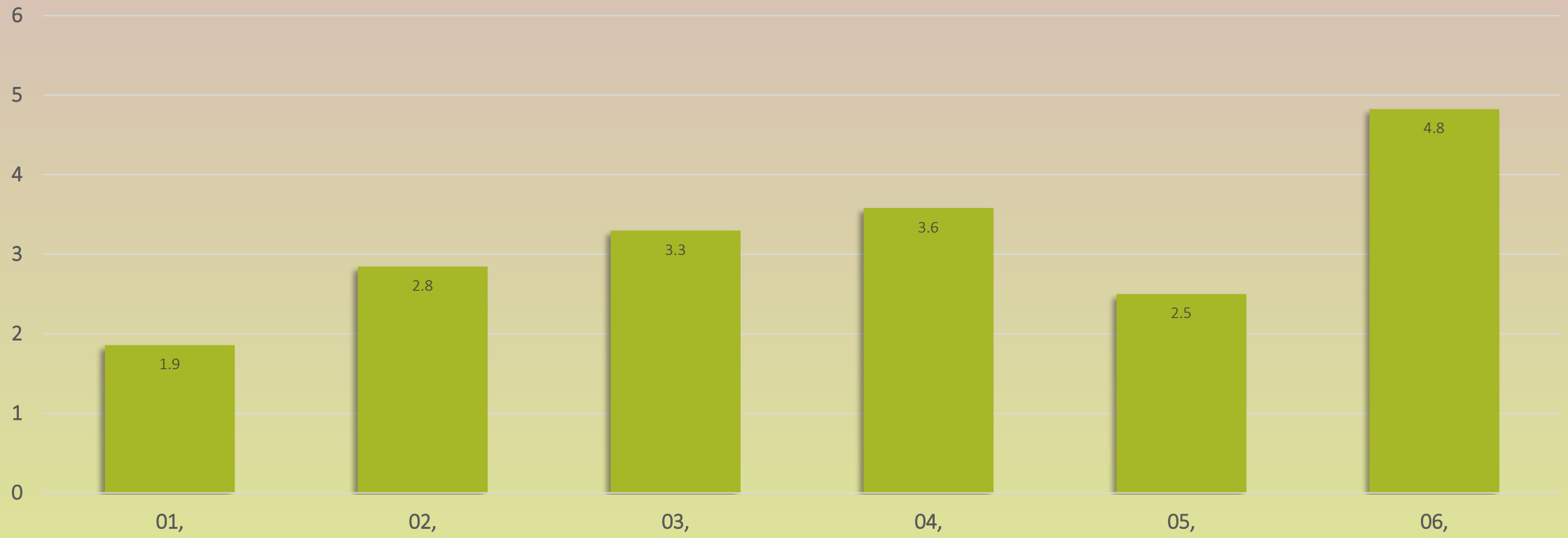
Project Environment



Average Process Days for Standard HPAs By Region

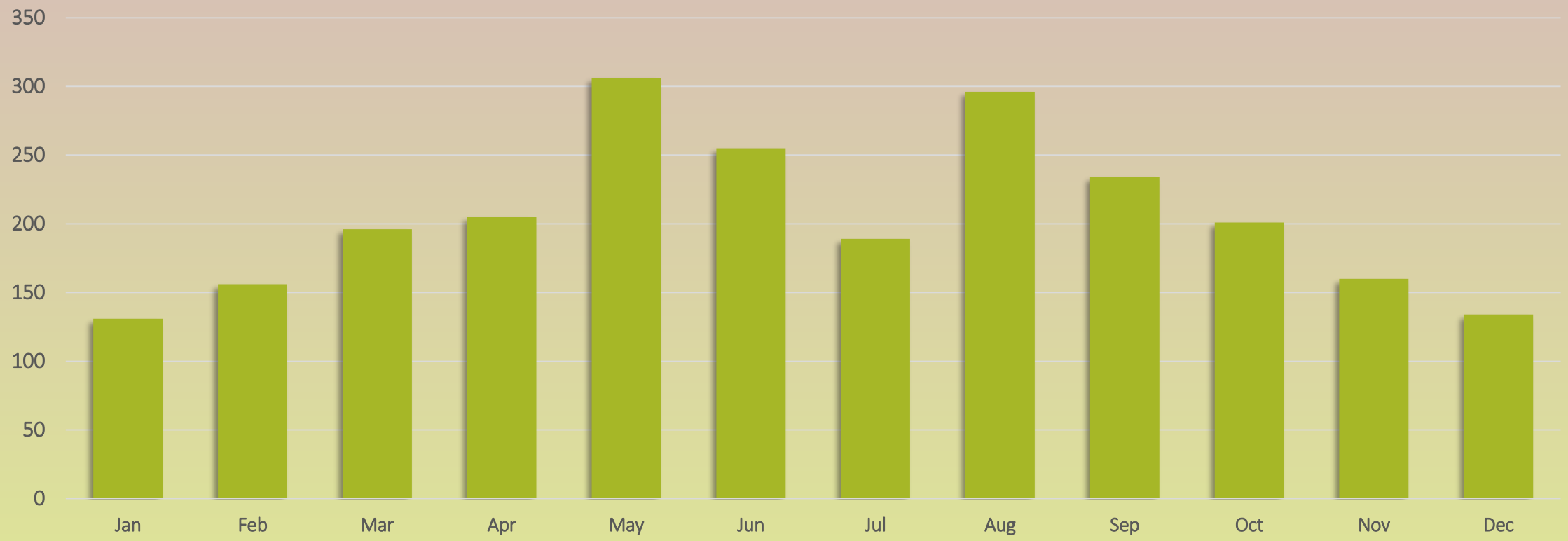
Statewide Average = 19.9 Days

Average Process Days for Expedited HPAs By Region

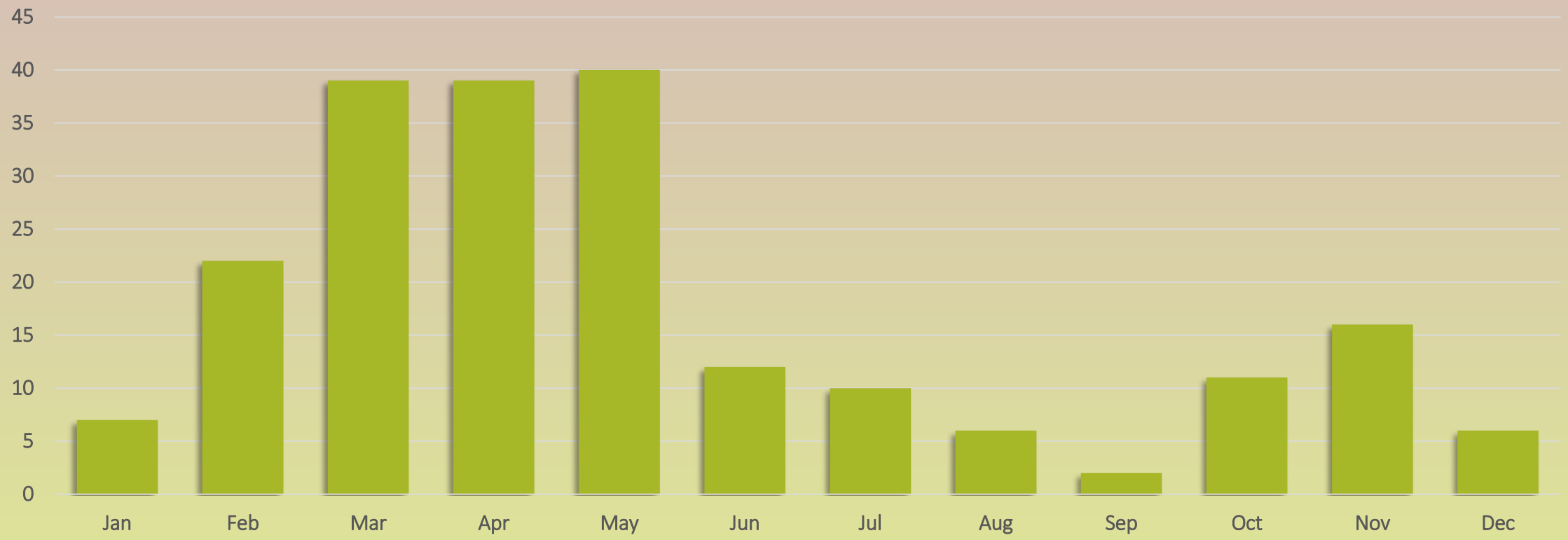


Statewide Average = 3.3 Days

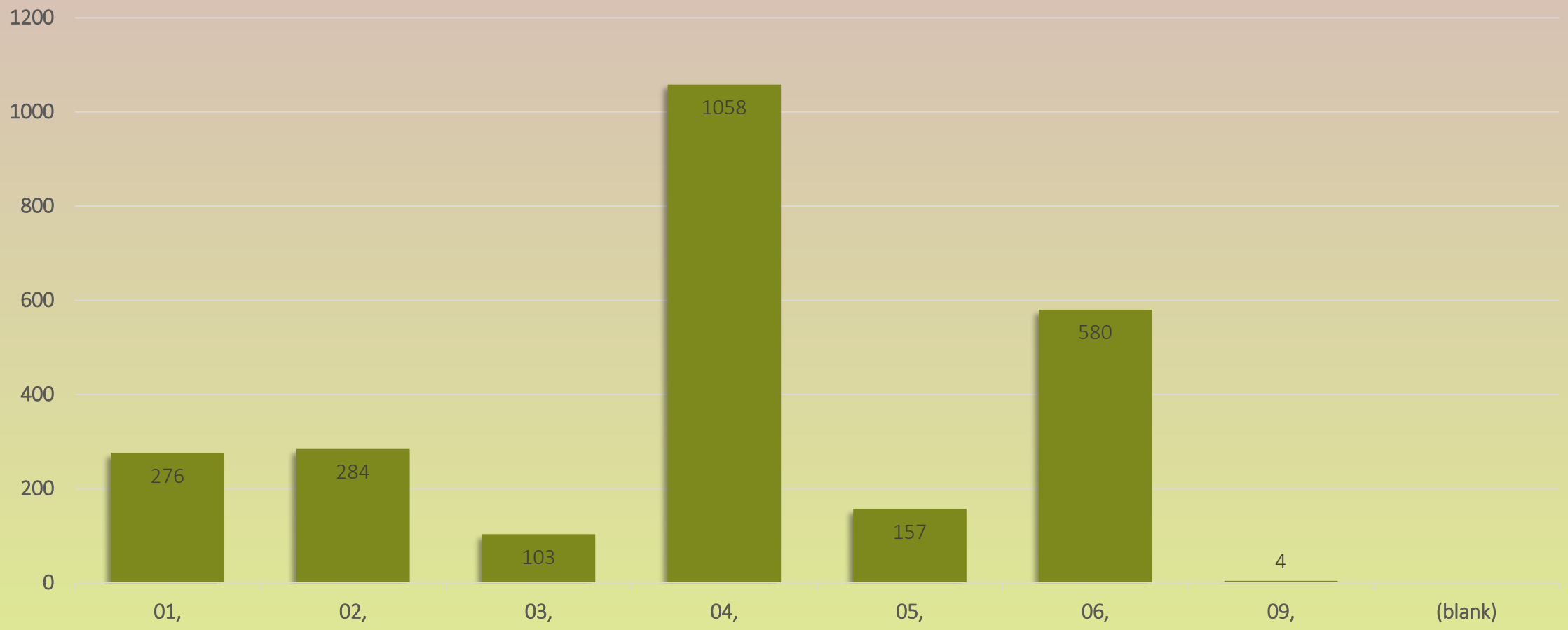
Accepted Date for All HPAs



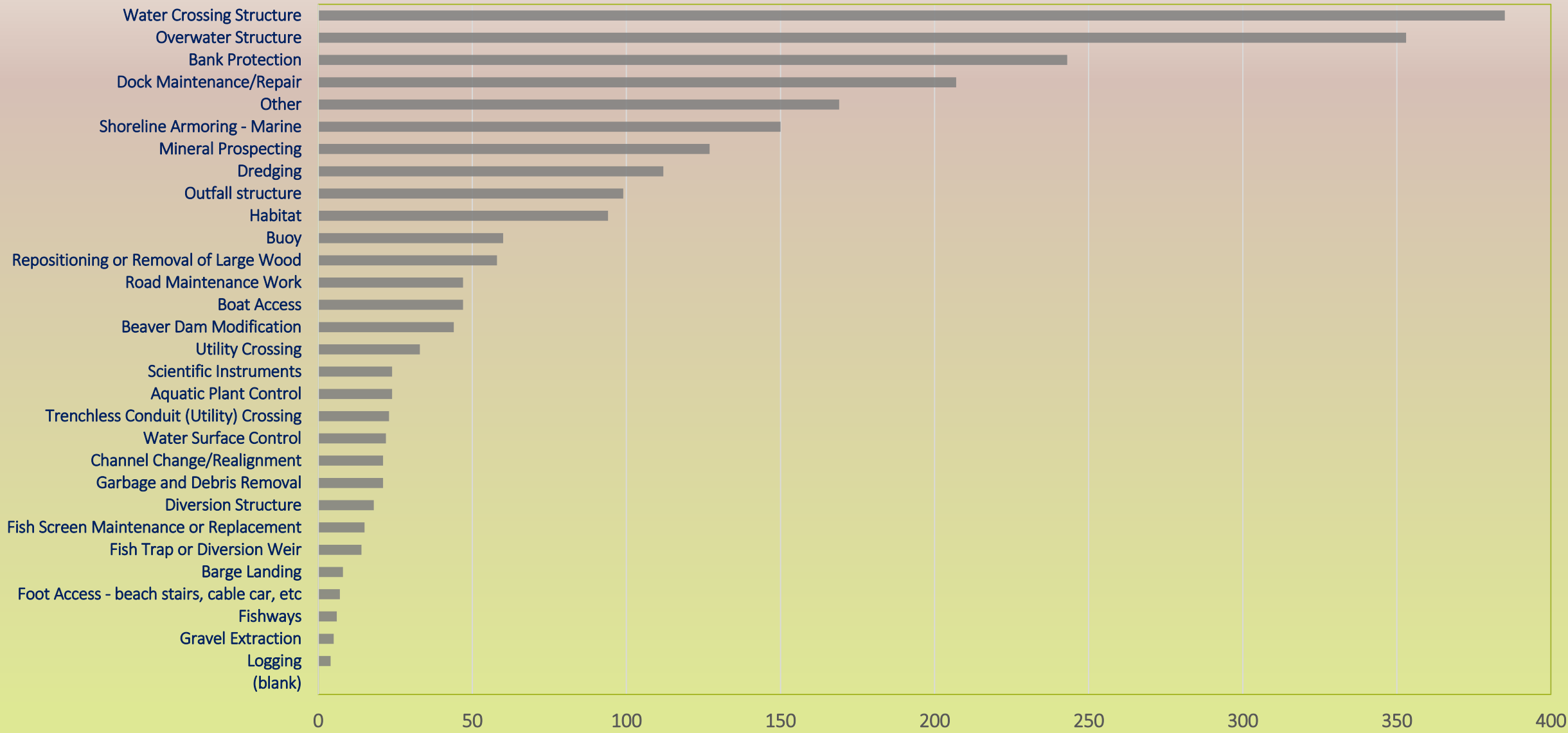
Accepted Date for Emergency HPAs



HPA Issued by Region



Project Types

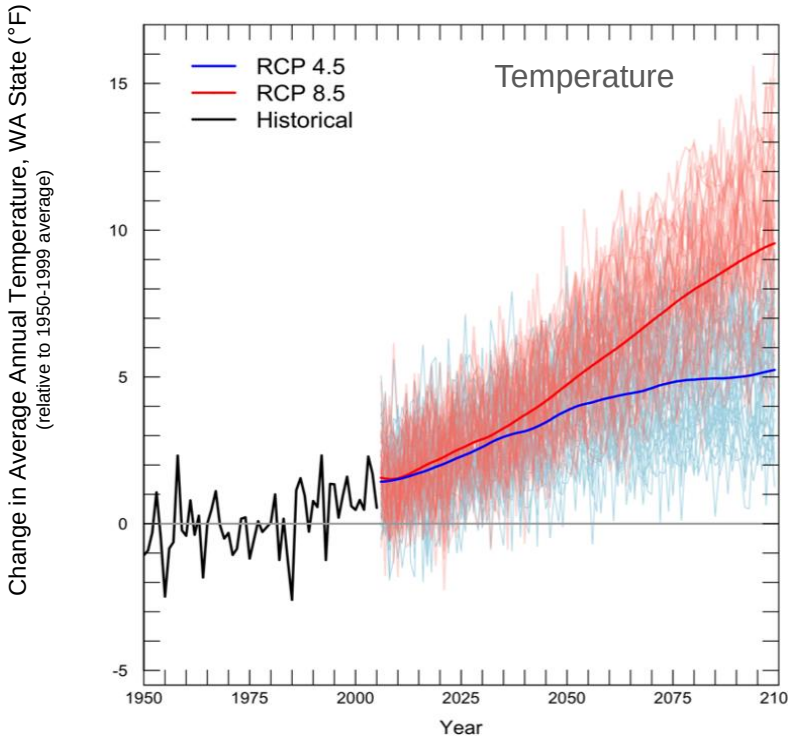


earth is heating up
Responding to climate
fish and wildlife in trouble
change at WDFW
got to do something



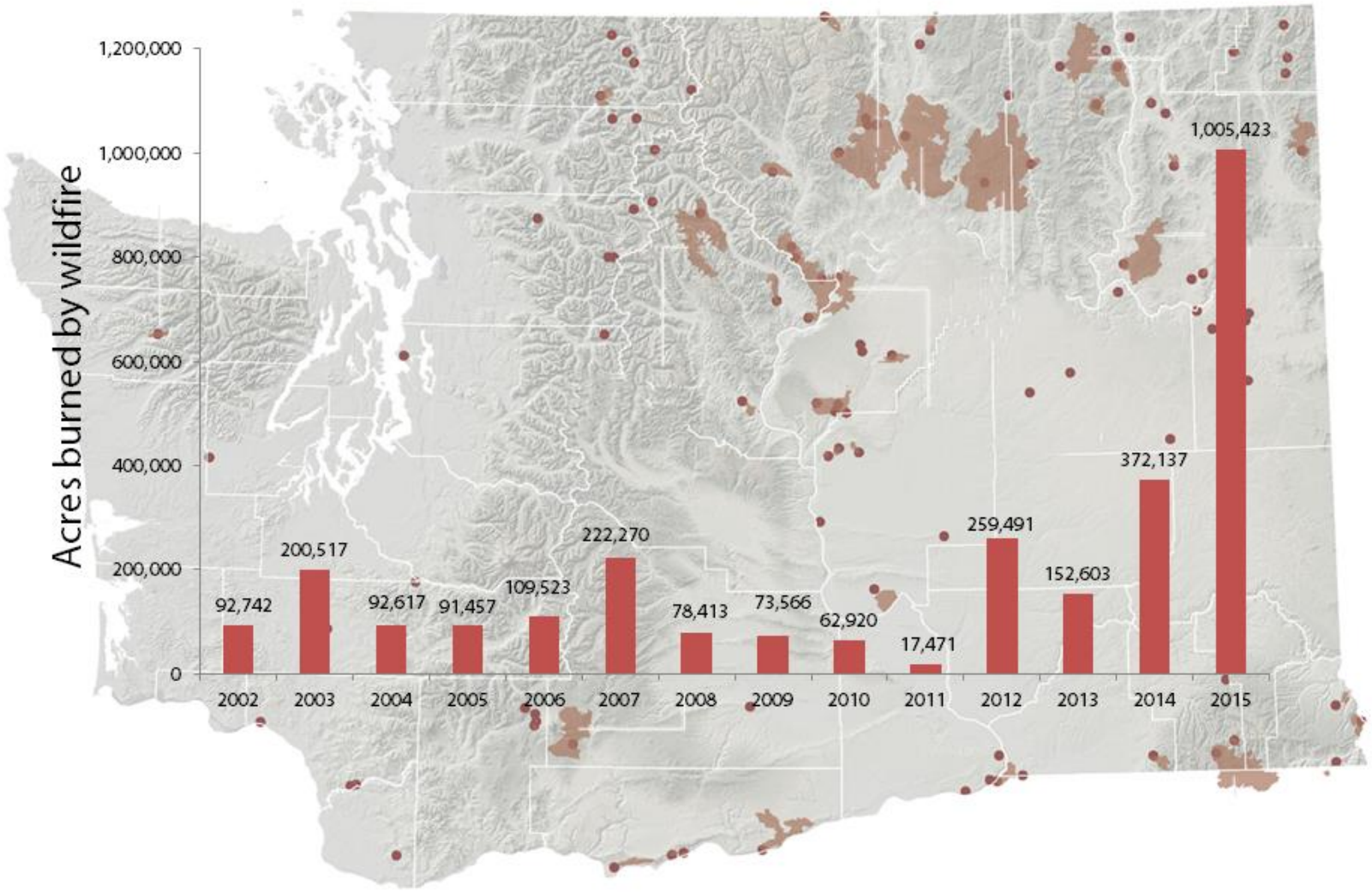
Lynn Helbrecht
Climate Change Coordinator
Washington Department of Fish and Wildlife

All scenarios show warming



Warming (WA): 2050s *(relative to 1950-1999)*	
Low emissions *RCP 4.5*	+4.3°F *(2.0-6.7°F)*
High emissions *RCP 8.5*	+5.8°F *(3.1-8.5°F)*

2015 WAS A RECORD YEAR FOR WILDFIRES IN WASHINGTON




©2015 MANDAVIES
ANNOUNCEMENTS:
CLIMATE CHANGE PRACTICE RUN TODAY.
WILDFIRES
DROUGHT
RECORD TEMPS
MELTING
FLOODS
WARMING
MASS MIGRATION

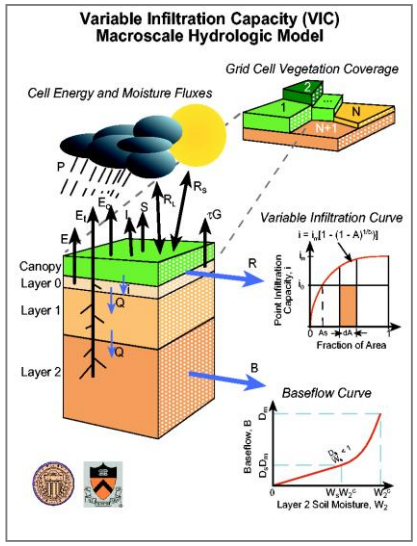
WDFW: responding to the challenge of climate change

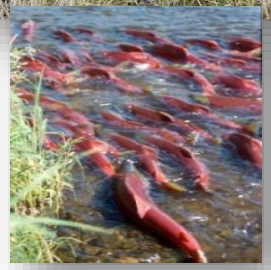
SCIENCE
Assessing changes expected to fish, wildlife and their habitats from climate change

EDUCATION
Building our capacity to respond

INTEGRATION
integrating adaptation into core work

COLLABORATION
With agencies, tribes, conservation partners





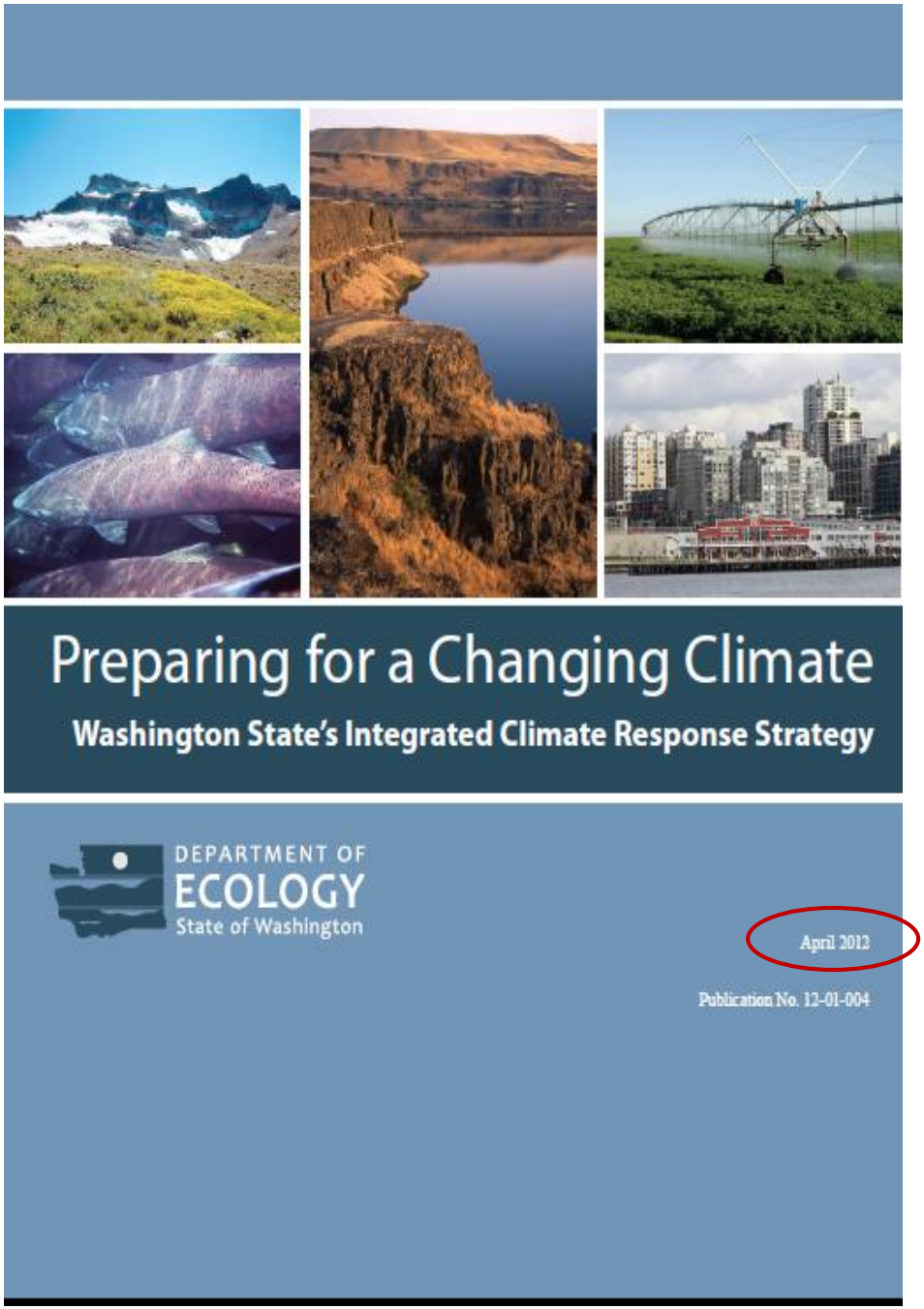
NATIONAL WILDLIFE FEDERATION

NORTH PACIFIC LANDSCAPE CONSERVATION COOPERATIVE

The Nature Conservancy
Protecting nature. Preserving life.

WDFW lead a stakeholder advisory group to develop recommendations for fish, wildlife and plants for the **Washington State Integrated Climate response Strategy.**

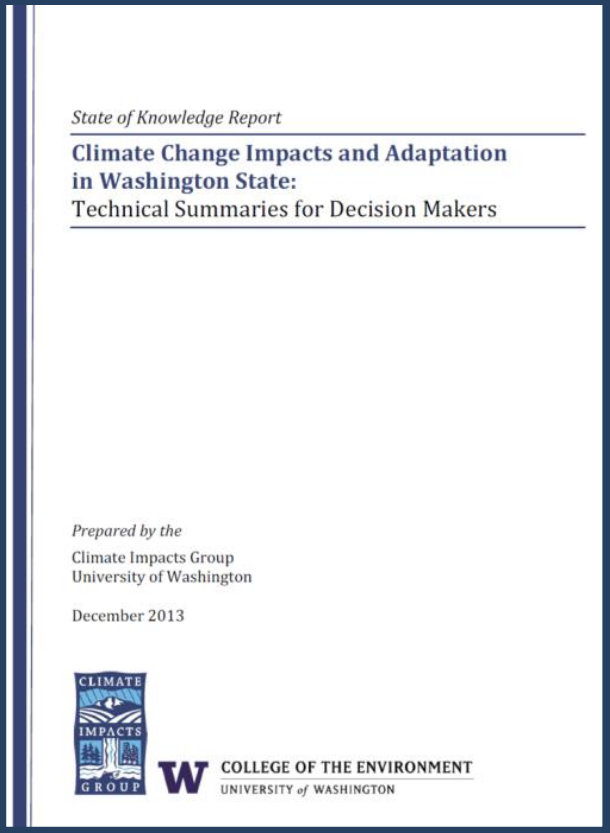
Prepared in response to 2009 state legislation – the Climate Leadership Act

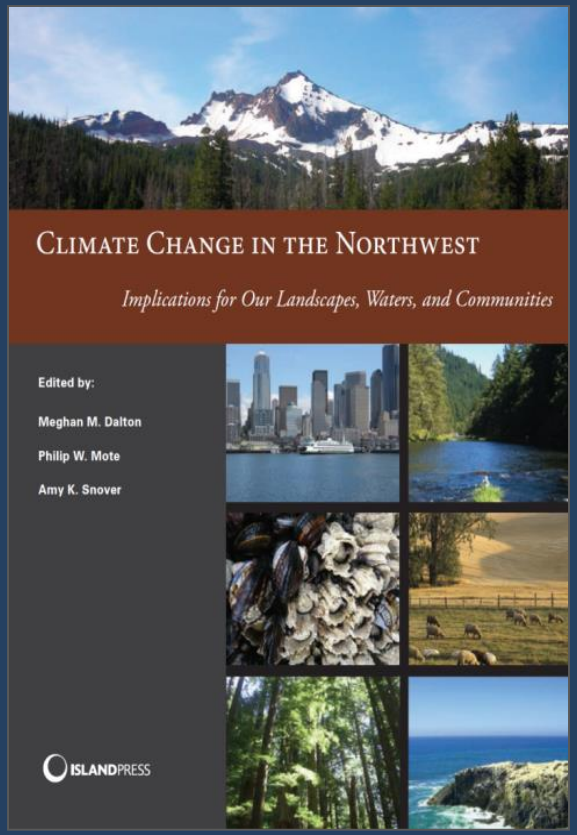


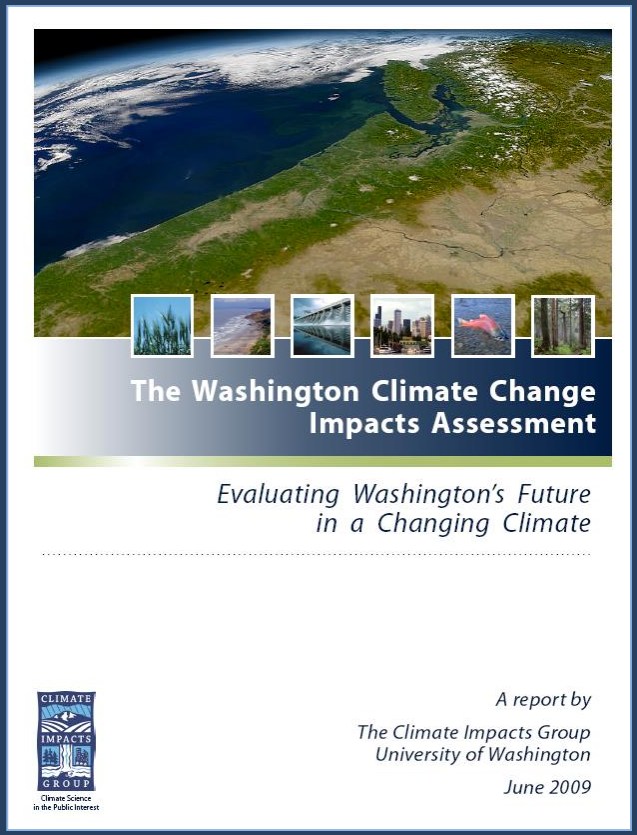
Washington's Climate Change Response Strategy

Table of Contents

Climate Science Products for the Northwest





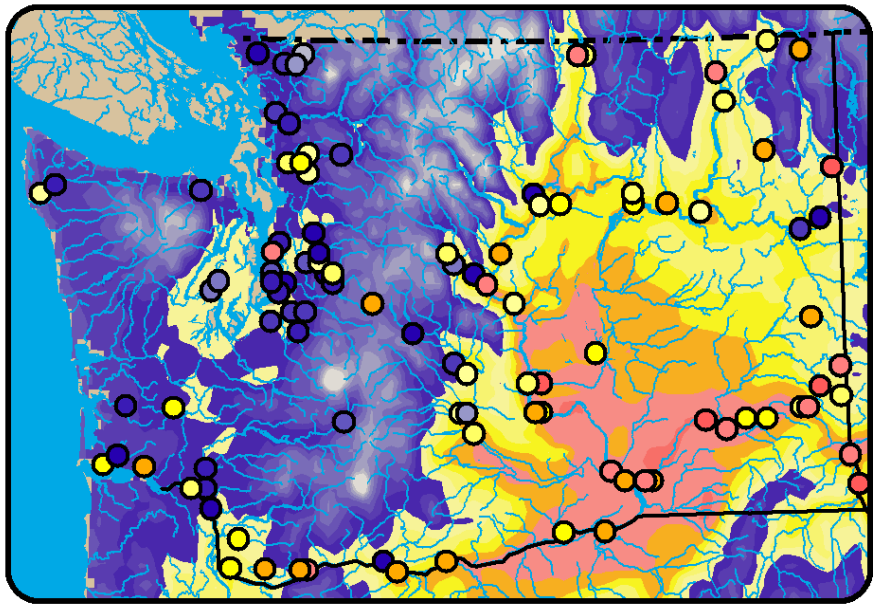


Salmon and Aquatic Ecosystems

August Mean Surface Air Temperature and Maximum Stream Temperature

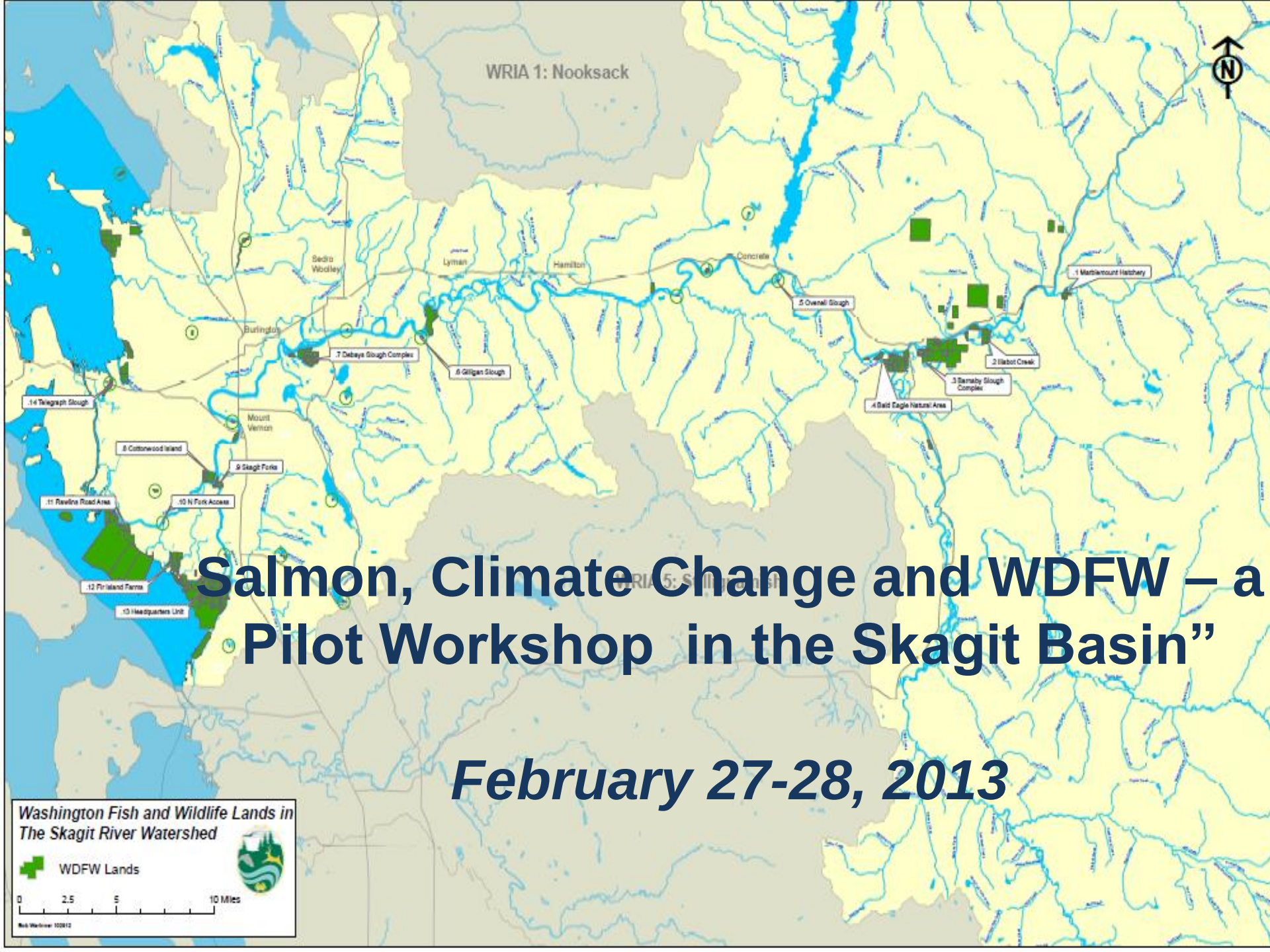
Historical (1970-1999)

2040s medium (A1B)



* Projections are compared with 1970-1999 average

Mantua et al. 2009



Salmon, Climate Change and WDFW – a Pilot Workshop in the Skagit Basin"

February 27-28, 2013

GOALS:

1. Identify WDFW decisions and activities in the Skagit that are vulnerable to climate change.
2. Identify science needs and adaptation options to make those activities more resilient.

Six Wall Charts/Small Groups:

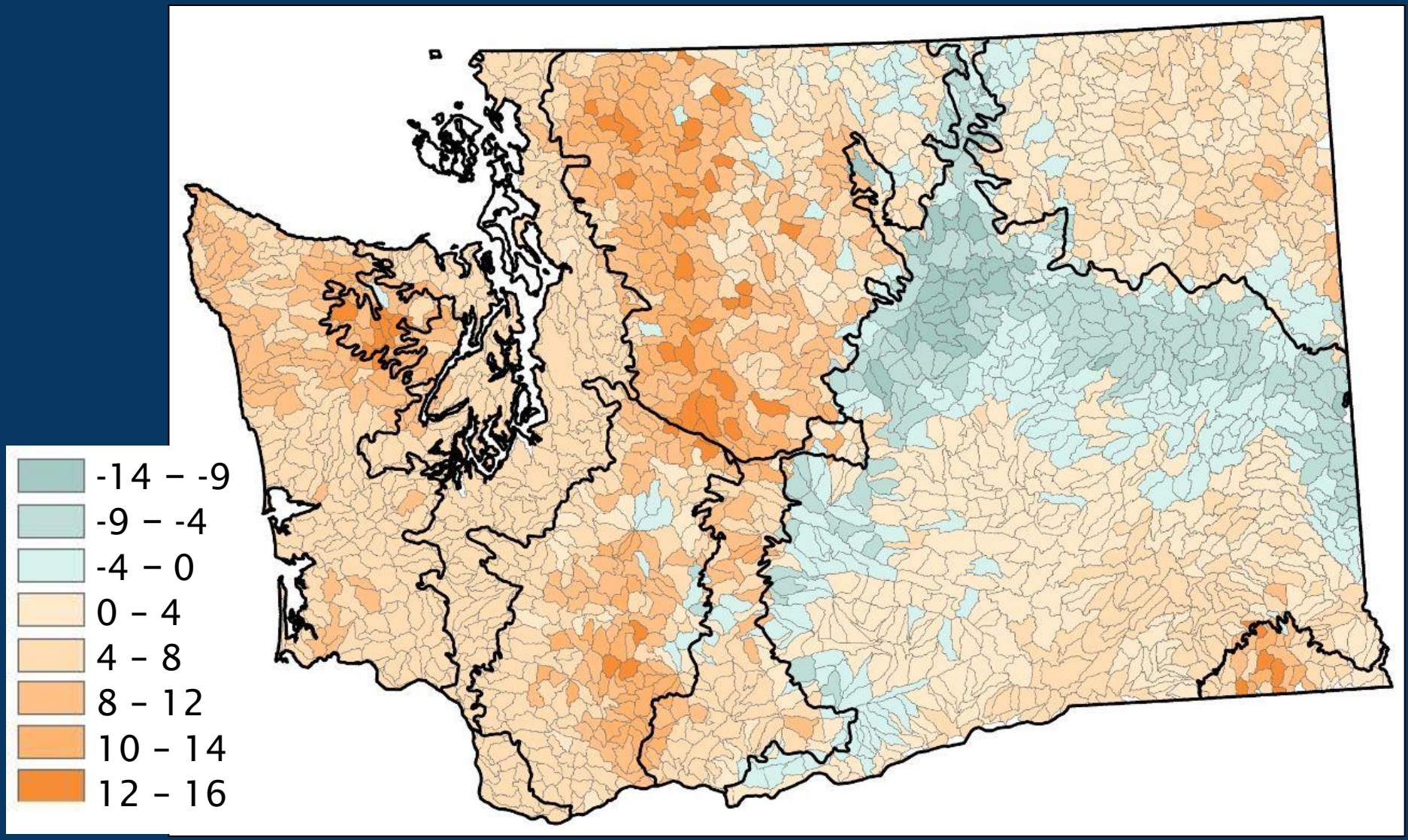
- Harvest Management
- Fish Passage
- Habitat Restoration
- Habitat Acquisition
- Hatcheries
- Hydraulic Permit Approvals

Incorporating Climate Change Projections into Culvert Design

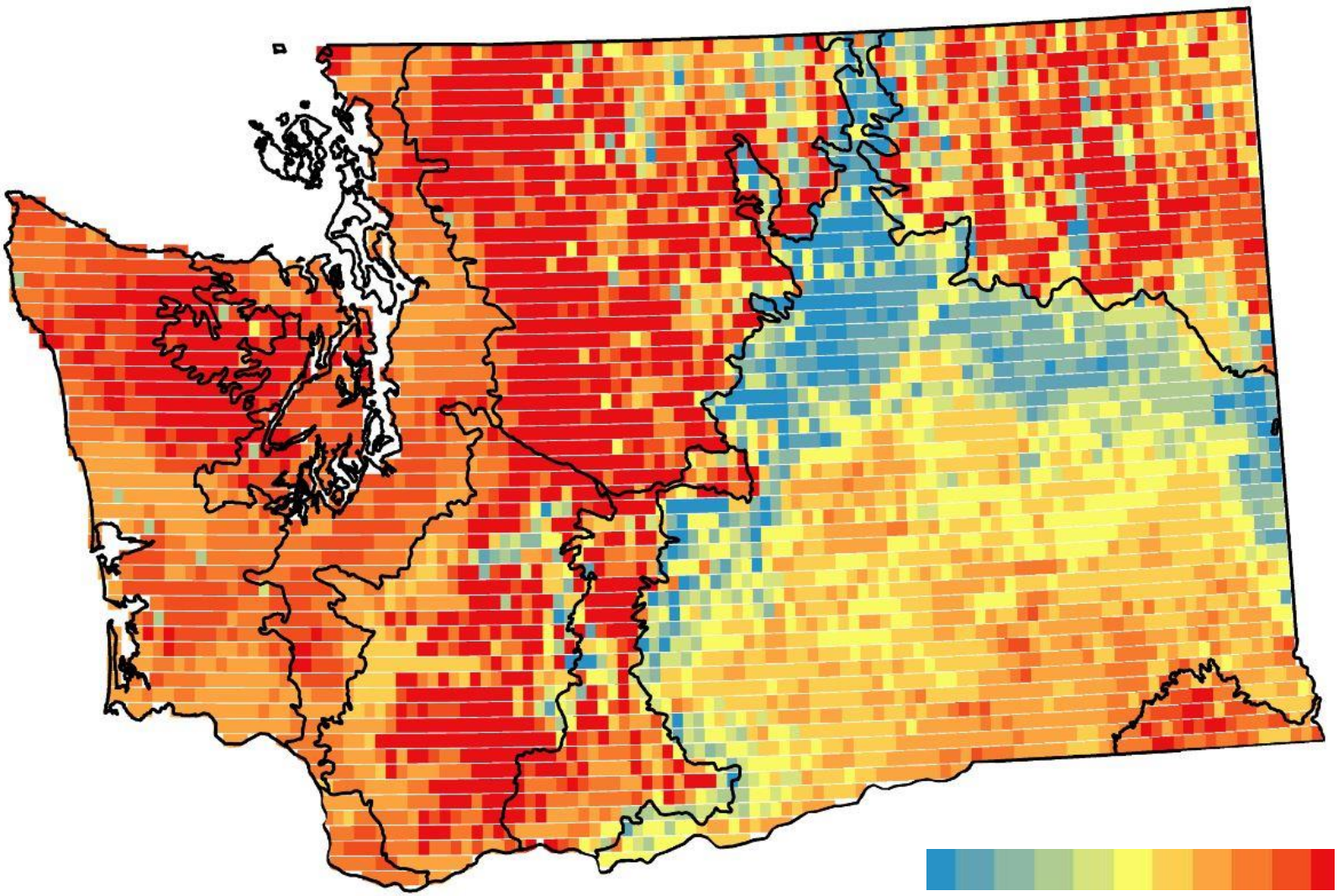
A project funded by the North Pacific Landscape Conservation Cooperative

November 29, 2016

Mean % Change BFW: 2030–2059



BFW Wider in 2030–2059



WDFW Climate Vulnerability Assessment:

-- 268 Species of Greatest Conservation Need

-- 80 ecological systems

Vulnerability is the degree to which a species is susceptible to, and unable to cope with adverse impacts of climate change.

Purpose of a vulnerability assessment:

Identify ***what*** species are most vulnerable and ***why***

We can use the findings to:

Understand how our management actions could ***better address risks*** from climate change.

Example: Cascade Red Fox

Sensitivity

HIGH (5)

High Confidence

Exposure

MODERATE-HIGH (4)

High Confidence

- Adapted to and dependent on cold, high elevation habitats
- Warmer temperatures and reduced snowpack may further contract suitable habitat range and/or facilitate movement of coyotes
- Altered fire regimes that degrade/eliminate habitat

↑ Air temperatures

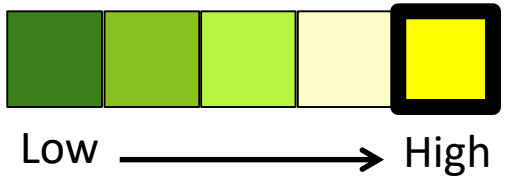
△ Wildfire regimes

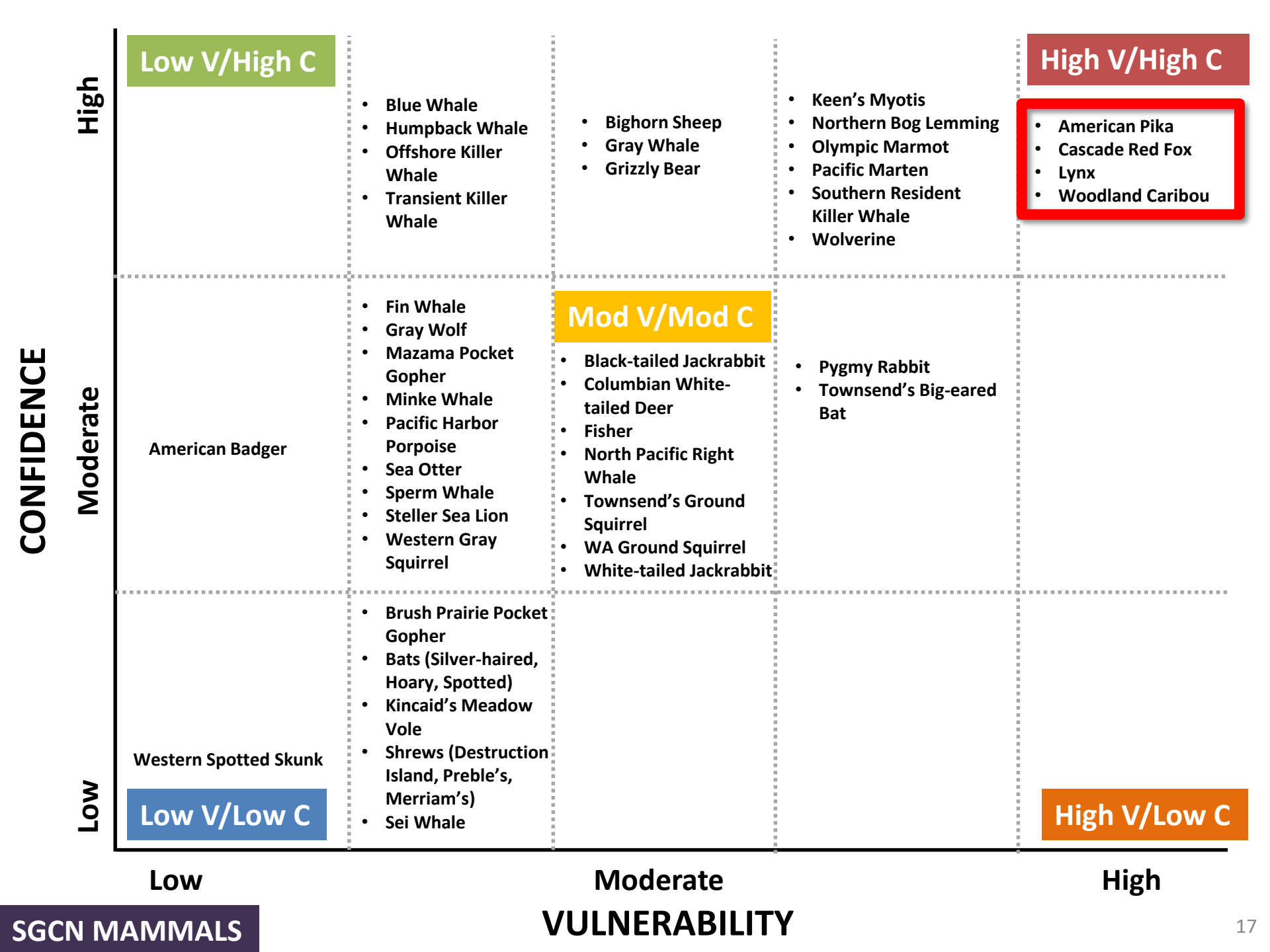
↓ Snowpack

Vulnerability:

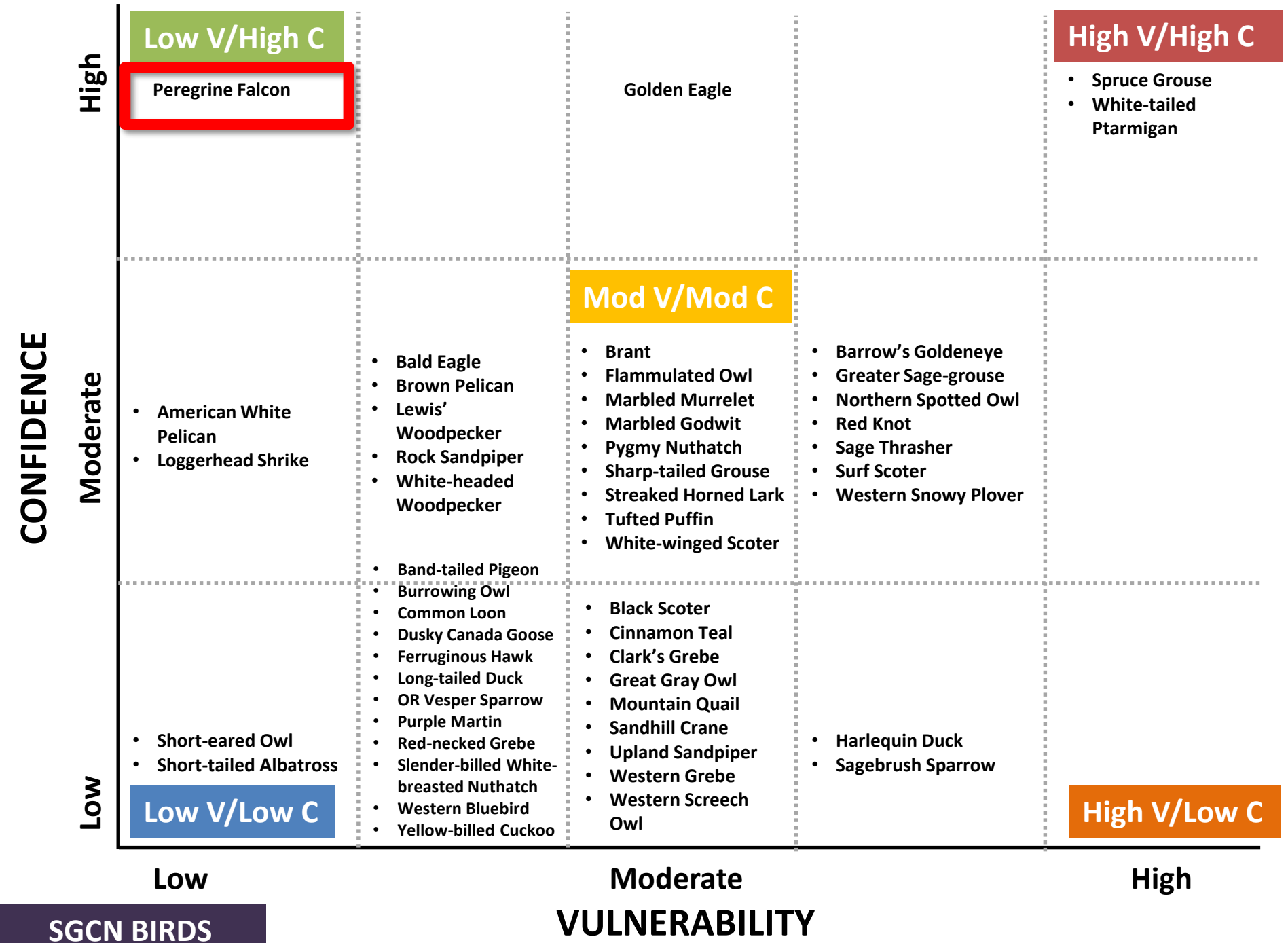
HIGH

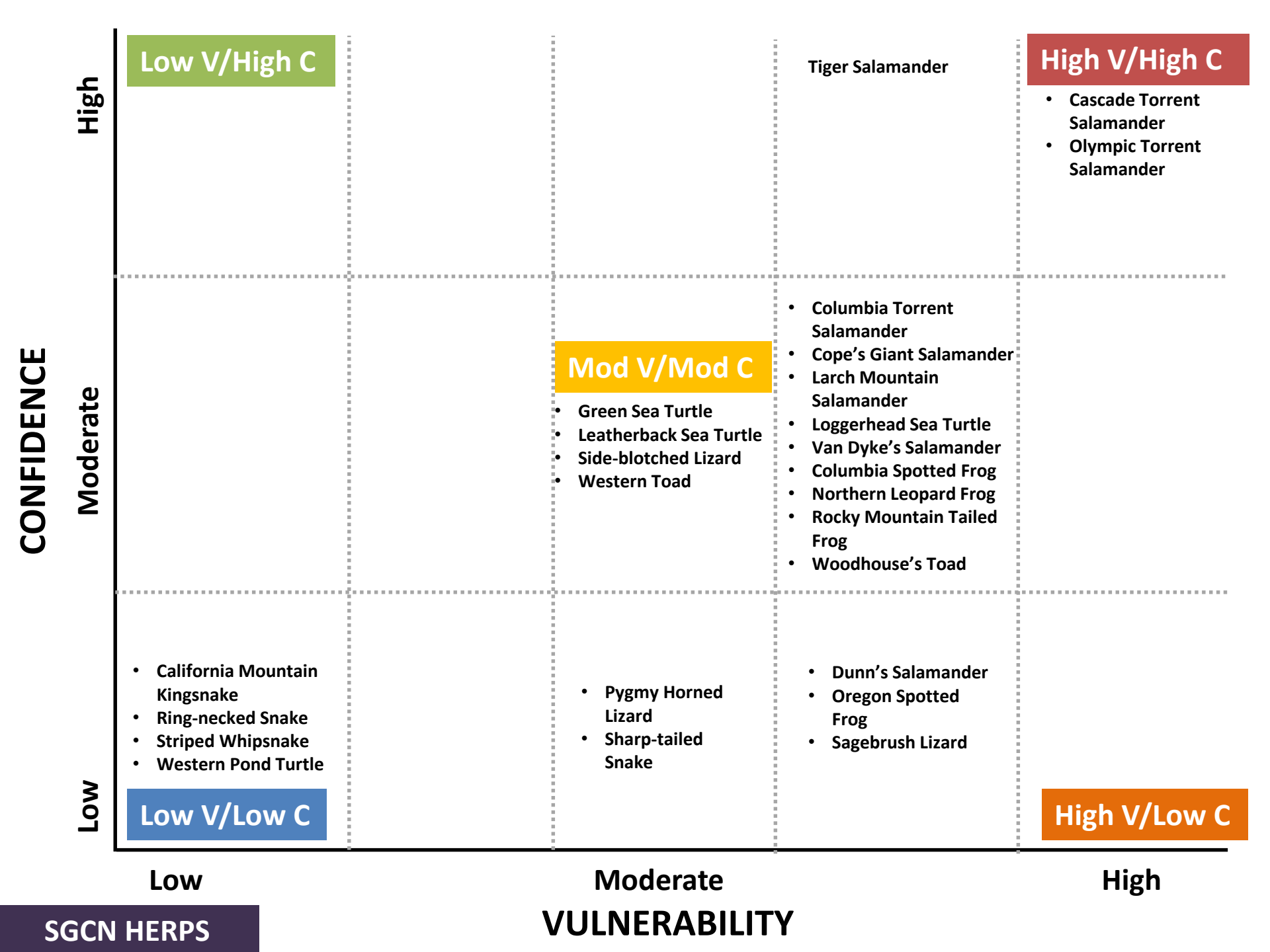
High Confidence

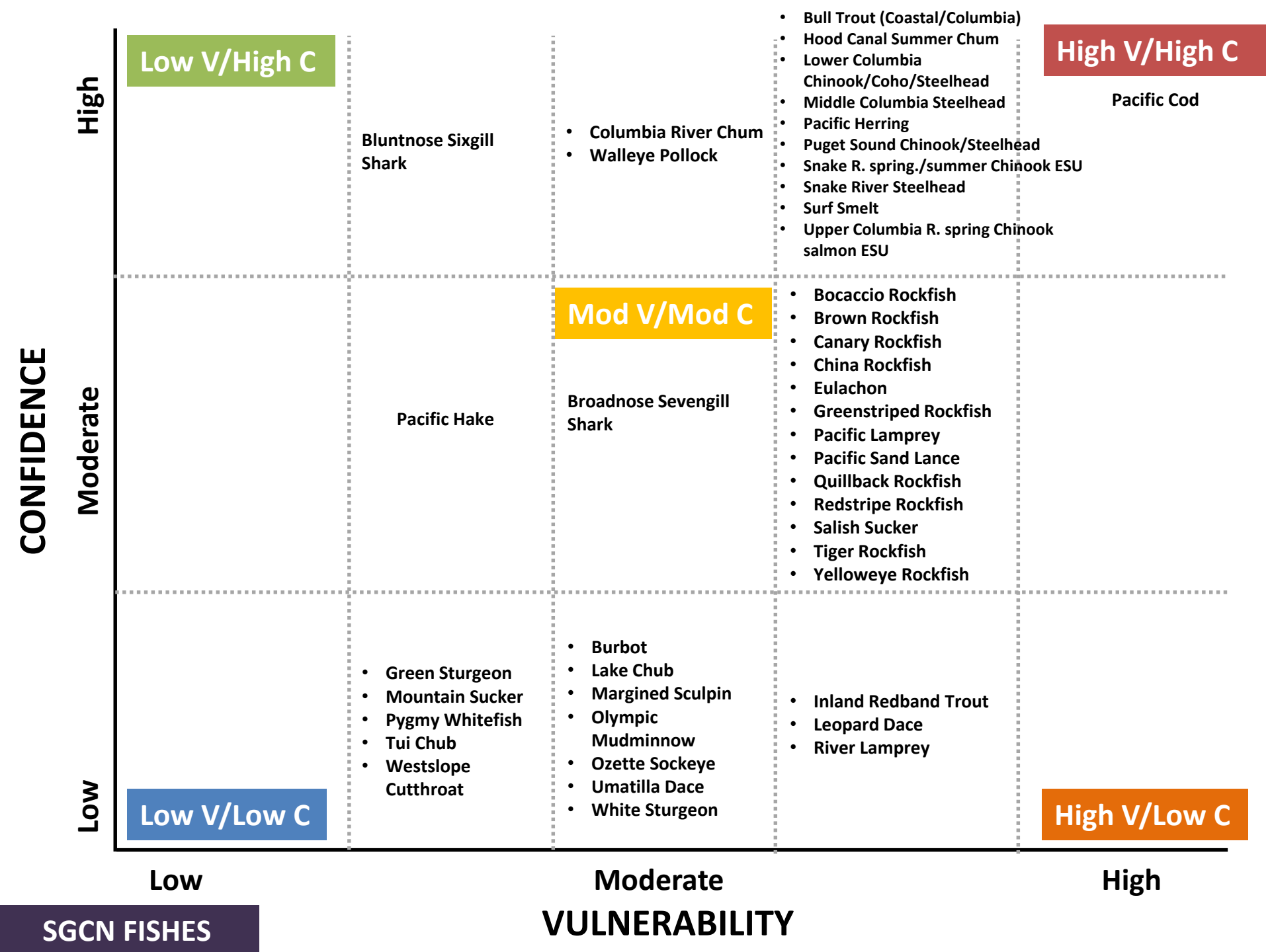


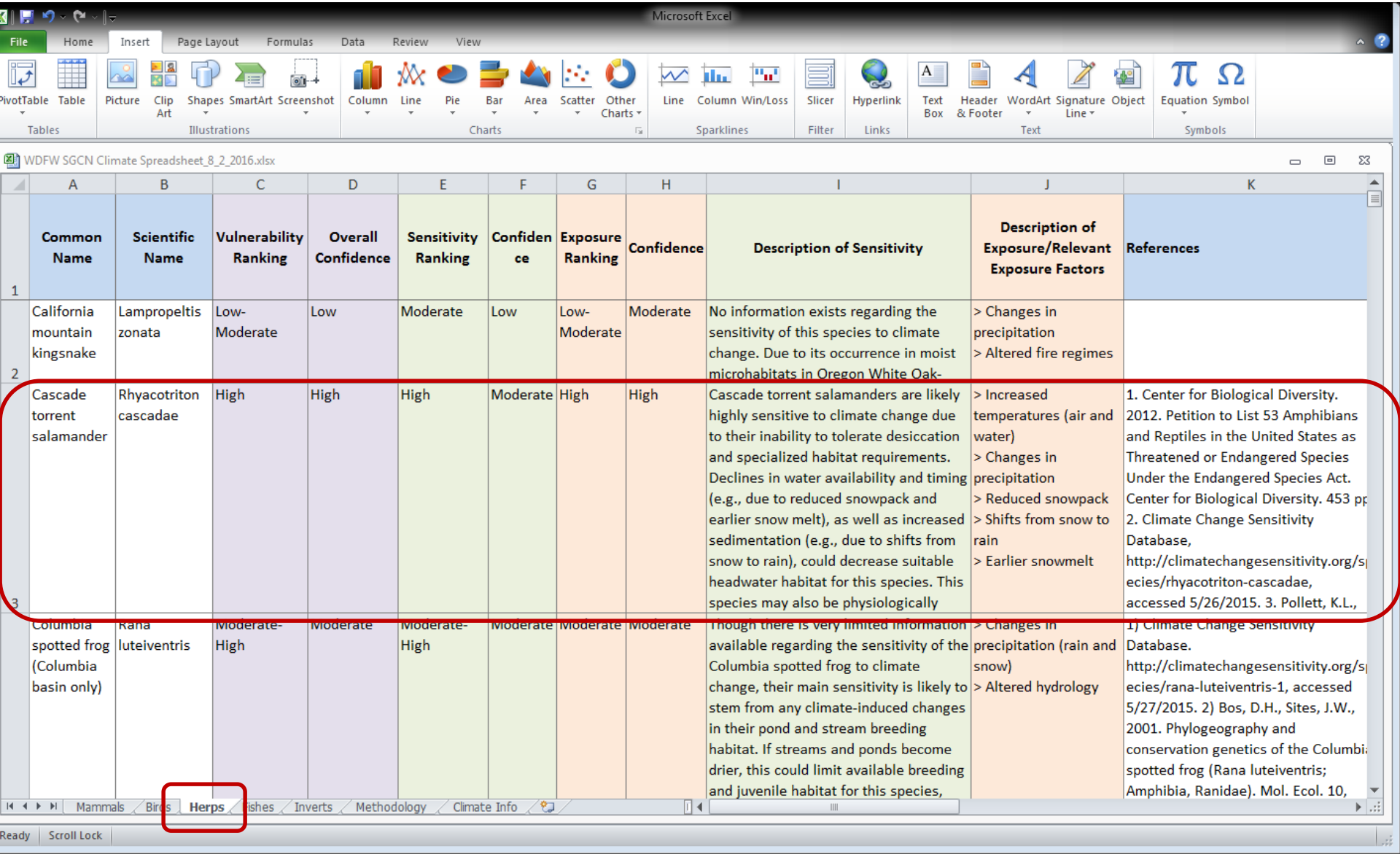


SGCN MAMMALS


Low V/High C
Peregrine Falcon
Golden Eagle
High V/High C
Spruce Grouse
White-tailed Ptarmigan
Mod V/Mod C
American White Pelican
Loggerhead Shrike
Bald Eagle
Brown Pelican
Lewis' Woodpecker
Rock Sandpiper
White-headed Woodpecker
Band-tailed Pigeon
Brant
Flammulated Owl
Marbled Murrelet
Marbled Godwit
Pygmy Nuthatch
Sharp-tailed Grouse
Streaked Horned Lark
Tufted Puffin
White-winged Scoter
Barrow's Goldeneye
Greater Sage-grouse
Northern Spotted Owl
Red Knot
Sage Thrasher
Surf Scoter
Western Snowy Plover
Short-eared Owl
Short-tailed Albatross
Low V/Low C
Burrowing Owl
Common Loon
Dusky Canada Goose
Ferruginous Hawk
Long-tailed Duck
OR Vesper Sparrow
Purple Martin
Red-necked Grebe
Slender-billed White-breasted Nuthatch
Western Bluebird
Yellow-billed Cuckoo
Black Scoter
Cinnamon Teal
Clark's Grebe
Great Gray Owl
Mountain Quail
Sandhill Crane
Upland Sandpiper
Western Grebe
Western Screech Owl
Harlequin Duck
Sagebrush Sparrow
High V/Low C
CONFIDENCE
High
Moderate
Low
Low
Moderate
High
VULNERABILITY
SGCN BIRDS


Low V/High C
Tiger Salamander
High V/High C
• Cascade Torrent Salamander
• Olympic Torrent Salamander
Mod V/Mod C
• Green Sea Turtle
• Leatherback Sea Turtle
• Side-blotched Lizard
• Western Toad
• Columbia Torrent Salamander
• Cope's Giant Salamander
• Larch Mountain Salamander
• Loggerhead Sea Turtle
• Van Dyke's Salamander
• Columbia Spotted Frog
• Northern Leopard Frog
• Rocky Mountain Tailed Frog
• Woodhouse's Toad
• California Mountain Kingsnake
• Ring-necked Snake
• Striped Whipsnake
• Western Pond Turtle
• Pygmy Horned Lizard
• Sharp-tailed Snake
• Dunn's Salamander
• Oregon Spotted Frog
• Sagebrush Lizard
Low V/Low C
High V/Low C
CONFIDENCE
High
Moderate
Low
Low
Moderate
High
VULNERABILITY
SGCN HERPS

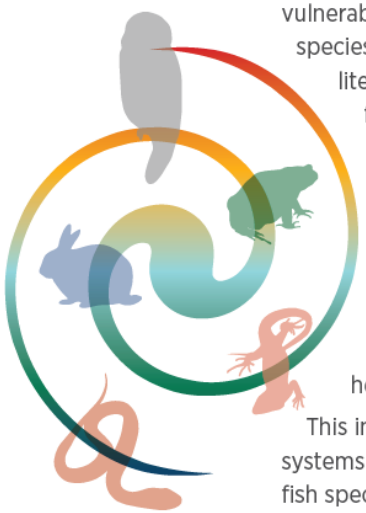

Low V/High C
Bluntnose Sixgill Shark
Columbia River Chum
Walleye Pollock
Bull Trout (Coastal/Columbia)
Hood Canal Summer Chum
Lower Columbia Chinook/Coho/Steelhead
Middle Columbia Steelhead
Pacific Herring
Puget Sound Chinook/Steelhead
Snake R. spring./summer Chinook ESU
Snake River Steelhead
Surf Smelt
Upper Columbia R. spring Chinook salmon ESU
High V/High C
Pacific Cod
Mod V/Mod C
Pacific Hake
Broadnose Sevengill Shark
Bocaccio Rockfish
Brown Rockfish
Canary Rockfish
China Rockfish
Eulachon
Greenstriped Rockfish
Pacific Lamprey
Pacific Sand Lance
Quillback Rockfish
Redstripe Rockfish
Salish Sucker
Tiger Rockfish
Yelloweye Rockfish
Green Sturgeon
Mountain Sucker
Pygmy Whitefish
Tui Chub
Westslope Cutthroat
Burbot
Lake Chub
Margined Sculpin
Olympic Mudminnow
Ozette Sockeye
Umatilla Dace
White Sturgeon
Inland Redband Trout
Leopard Dace
River Lamprey
Low V/Low C
High V/Low C
CONFIDENCE
High
Moderate
Low
Low
Moderate
High
VULNERABILITY
SGCN FISHES



	A	B	C	D	E	F	G	H	I	J	K
1	**Common Name**	**Scientific Name**	**Vulnerability Ranking**	**Overall Confidence**	**Sensitivity Ranking**	**Confidence**	**Exposure Ranking**	**Confidence**	**Description of Sensitivity**	**Description of Exposure/Relevant Exposure Factors**	**References**
2	California mountain kingsnake	Lampropeltis zonata	Low-Moderate	Low	Moderate	Low	Low-Moderate	Moderate	No information exists regarding the sensitivity of this species to climate change. Due to its occurrence in moist microhabitats in Oregon White Oak-	> Changes in precipitation > Altered fire regimes	
3	Cascade torrent salamander	Rhyacotriton cascadae	High	High	High	Moderate	High	High	Cascade torrent salamanders are likely highly sensitive to climate change due to their inability to tolerate desiccation and specialized habitat requirements. Declines in water availability and timing (e.g., due to reduced snowpack and earlier snow melt), as well as increased sedimentation (e.g., due to shifts from snow to rain), could decrease suitable headwater habitat for this species. This species may also be physiologically	> Increased temperatures (air and water) > Changes in precipitation > Reduced snowpack > Shifts from snow to rain > Earlier snowmelt	1. Center for Biological Diversity. 2012. Petition to List 53 Amphibians and Reptiles in the United States as Threatened or Endangered Species Under the Endangered Species Act. Center for Biological Diversity. 453 pp 2. Climate Change Sensitivity Database, http://climatechangesensitivity.org/species/rhyacotriton-cascadae, accessed 5/26/2015. 3. Pollett, K.L.,
	Columbia spotted frog (Columbia basin only)	Rana luteiventris	Moderate-High	Moderate	Moderate-High	Moderate	Moderate	Moderate	Though there is very limited information available regarding the sensitivity of the Columbia spotted frog to climate change, their main sensitivity is likely to stem from any climate-induced changes in their pond and stream breeding habitat. If streams and ponds become drier, this could limit available breeding and juvenile habitat for this species,	> Changes in precipitation (rain and snow) > Altered hydrology	1) Climate Change Sensitivity Database. http://climatechangesensitivity.org/species/rana-luteiventris-1, accessed 5/27/2015. 2) Bos, D.H., Sites, J.W., 2001. Phylogeography and conservation genetics of the Columbia spotted frog (Rana luteiventris; Amphibia, Ranidae). Mol. Ecol. 10,

How Will Climate Change Affect Shrub-Steppe Ecological Systems and Species in Washington?

Introduction



This summary represents an initial evaluation of climate change vulnerability for shrub-steppe systems and closely associated species based on expert input and information in the scientific literature. In this context, climate change vulnerability is a function of the sensitivity of a particular resource to climate changes and its exposure to those changes. The aim of this document is to summarize the climatic factors shrub-steppe systems and species are sensitive to, the projected changes for those factors, and potential impacts to systems and species. This document also provides an overview of management actions that could be implemented to help reduce vulnerabilities and impacts.

This initial evaluation focused on the terrestrial ecological systems within the shrub-steppe, and did not include the fish species that use aquatic and riparian systems in the same geography.

Exposure:
How much of a change in climate a system or species is likely to experience

Sensitivity:
Whether and how a system or species is likely to be affected by a given change in climate

Vulnerability

$$V = E+S / 2$$

This assessment also included confidence rankings. Confidence reflects the sureness experts had in a given ranking and was based on the extent and quality of reference material and information.

WDFW: responding to the challenge of climate change

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Assessing changes expected to fish, wildlife and their habitats from climate change

EDUCATION
Building our capacity to respond

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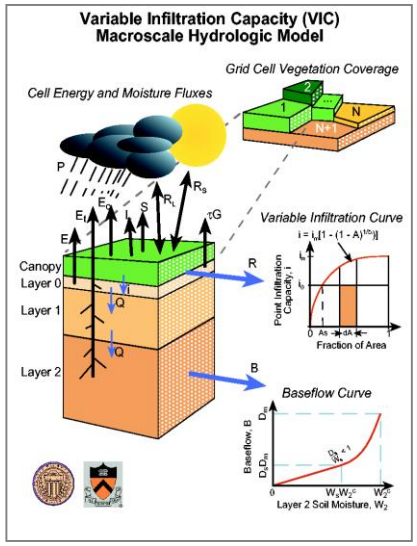

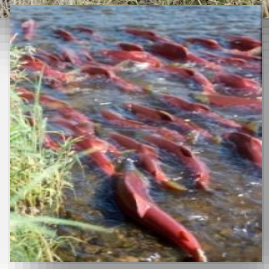

At its core, planning for climate change is about *risk management*

Purpose:

Provide guidance for managing risks to agency investments due to current and future impacts of

Introducing a *new* WDFW Policy

“Addressing the Risks of Climate Change”

adopted March 2017

risks and taking steps to reduce our own carbon footprint and contribution to greenhouse gas emissions

The Policy introduces the concept of *"climate sensitive"* activities and investments

Climate-sensitive investments and activities are those that are affected by climatic factors such as temperature and precipitation and extreme weather events, as well as climate-driven processes such as water temperature, streamflow, sea-level rise and ocean acidification.

Time frame and duration of the investment is also a criteria in terms of when to evaluate future climate conditions. For example, replacing a culvert expected to last 30-70 years, versus implementing an annual weed management plan.

Policy 5408: Addressing the Risks of Climate Change

1. **Preamble:** Six points to make the case for why we need the policy.
2. **Purpose:** Provide guidance for managing risks to agency investments due to current and future impacts of climate change.
3. **Principles for "Climate-smart Conservation"**
4. **Policy:** "It is the policy of WDFW to manage its operations and assets so as to better understand, mitigate and adapt to the impacts of climate change".
    A. Strategic Planning
    B. Resource Planning
    C. Agency Facilities and Infrastructure
    D. Land Acquisition
    E. Land Management
    F. Technical Assistance
    G. Grants
    H. Outreach and Advocacy
    I. Regulatory Processes
    J. Reducing WDFW's Carbon Footprint

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    F. Technical Assistance
    G. Grants
    H. Outreach and Advocacy
    I. Regulatory Processes
    J. Reducing WDFW's Carbon Footprint
5. **Implementation:** A "Climate Action Team" will be established to guide implementation of this policy.

Principles of “Climate-smart” conservation*

**adapted from Stein et al, 2013*

or, “how do we do conservation differently if we are thinking about climate change?”

Principles for Climate Smart Conservation

Embrace forward looking goals.

Conservation goals focus on future, rather than past climatic and ecological conditions; strategies take a long view, but account for near term conservation challenges

Consider broader landscape context.

On the ground actions are designed in the context of broader geographic scales to account for likely shifts in species distributions, to sustain ecological processes and connectivity and to promote collaboration.

Manage for interactions of multiple stressors

Impacts from changing climate are often first felt through their effect on ecological disturbance (wildfire, flooding, drought, insect and disease). Ecosystems should be managed for resilience to these large scale disturbances and their interactions.

Adopt strategies robust to uncertainty.

Strategies and actions provide benefit across a range of possible future conditions to account for uncertainties in future conditions and in ecological and human responses to climate shifts.

Account for climate influence on project success.

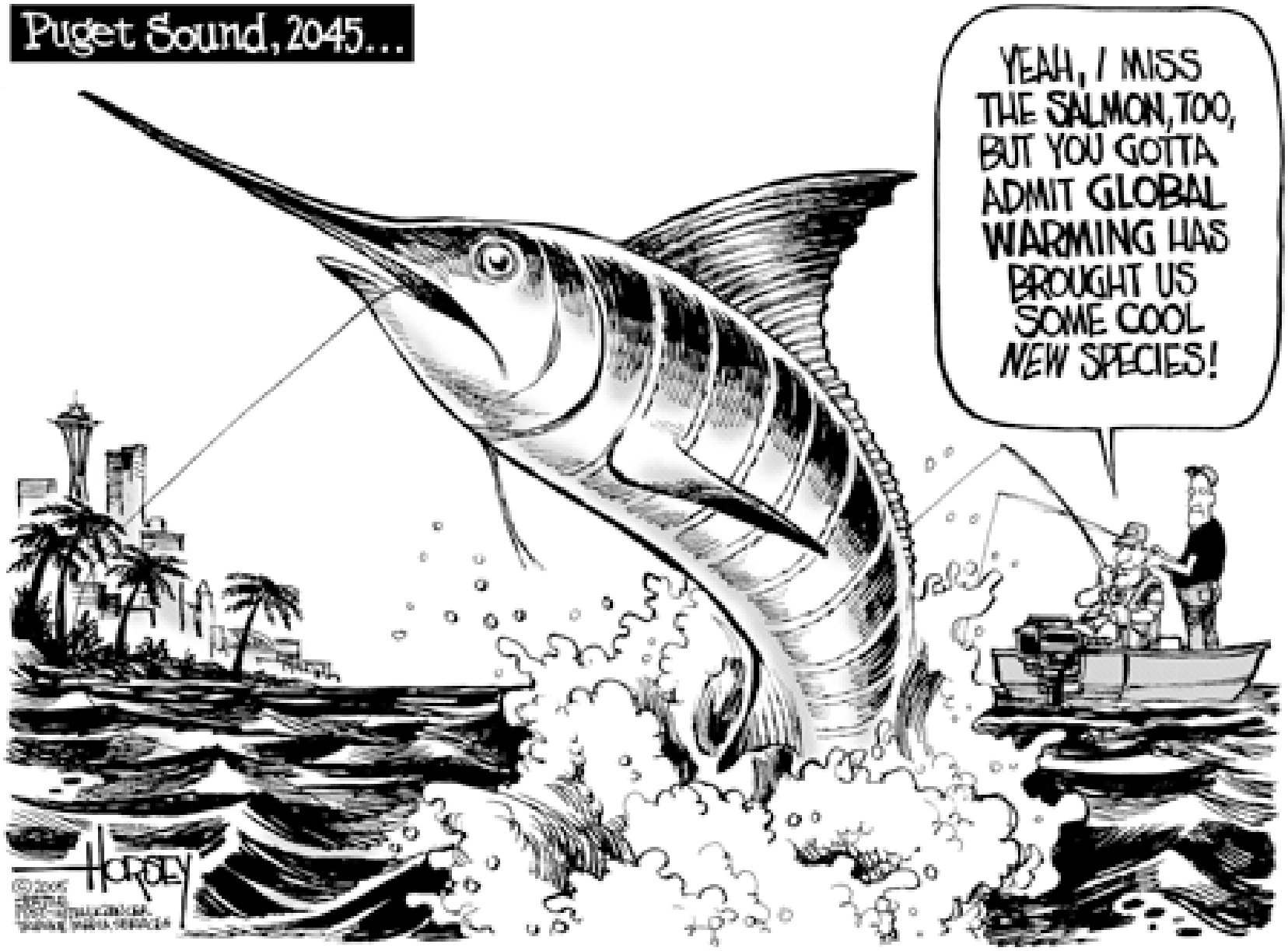
Considers how foreseeable climate impacts may compromise project success; avoids investing in efforts likely to be undermined by climate-related changes.

Employ agile and informed management.

Conservation planning and resource management are capable of continuous learning and dynamic adjustment to accommodate uncertainty,

Safeguard people *and* nature.

Strategies and actions ideally enhance the capacity of ecosystems to reduce climate vulnerabilities for people as well as wildlife, and to sustain benefits to both.



From the Seattle Post-Intelligencer, October 20, 2005

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Lynn.helbrecht@dfw.wa.gov