

# Southern Resident Killer Whale (SRKW) Task Force

*June 3, 2019 Meeting – Slide Deck*

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# J17

*Aerial images of adult female Southern Resident killer whale "J17", displaying poor body condition in May 2019. Her condition is contrasted to September 2018, when she was also very lean but had not yet developed an obvious "peanut head", and to September 2015 when she was clearly pregnant (note width at mid body) and in peak recent condition. Images obtained by Holly Fearnbach ([SR3](#)) and John Durban ([NOAA Southwest Fisheries Science Center](#)) using an remotely-piloted drone under NMFS Research Permit #19091.*



# Spring/Summer 2019

- Review existing information and sample results for J17 and J50
- Ongoing health research, photogrammetry, observations, sampling (prey, feces, breath)
  - Center for Whale Research
  - University of WA
  - NOAA
  - Soundwatch
  - DFO and partners
- Ongoing research coordination



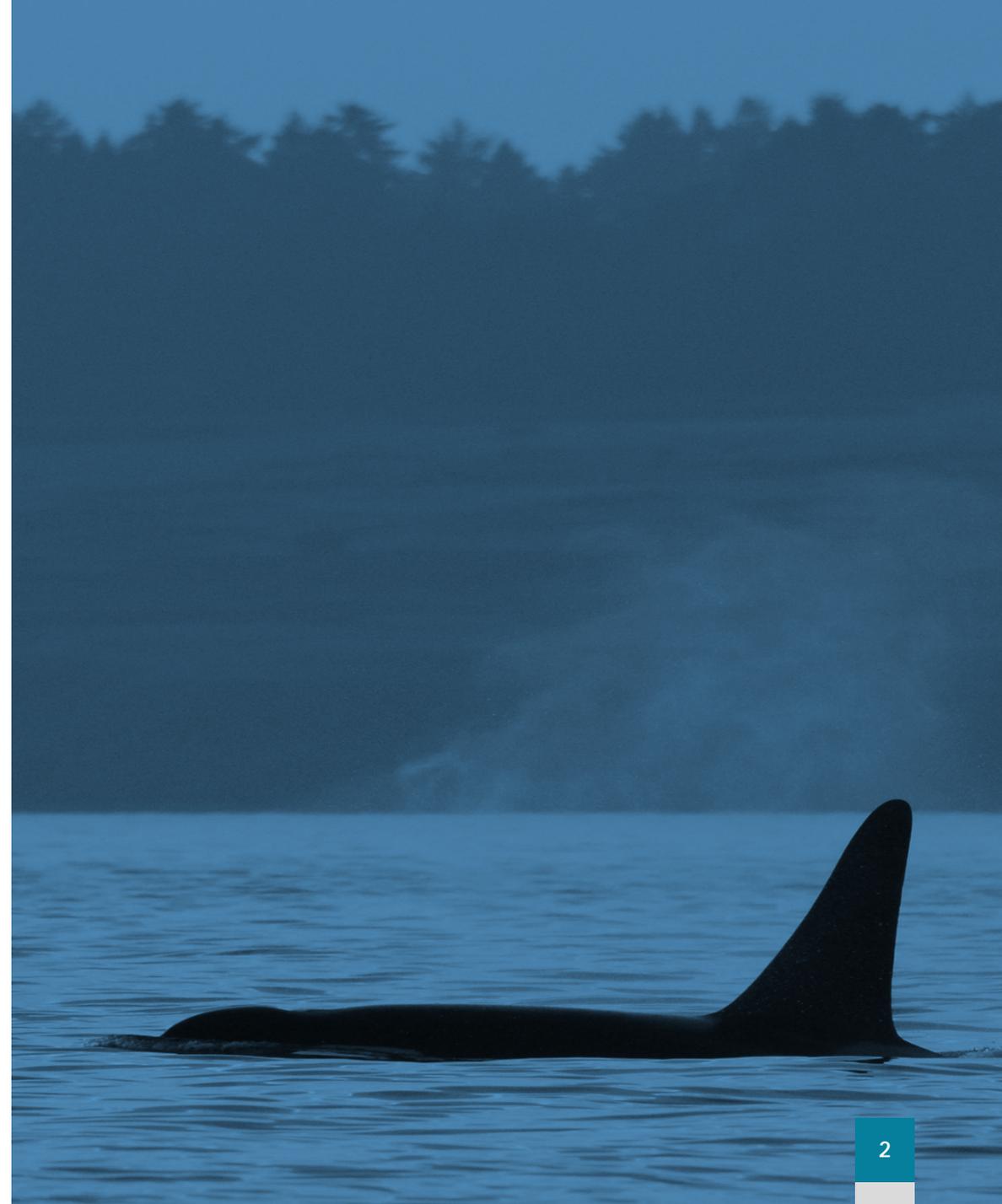


# SRKW Task Force

Status of Year 1 Recommendations—June 3, 2019

## Legislative Update:

- **ESHB 1578:** Oil transportation safety.
- **2SHB 1579:** Increase Chinook and other orca prey abundance.
- **2SSB 5577:** Reduce vessel noise and disturbance.
- **SB 5918:** Whale watching guidelines in boating safety education program.
- **SSB 5135:** Toxic pollution prevention.

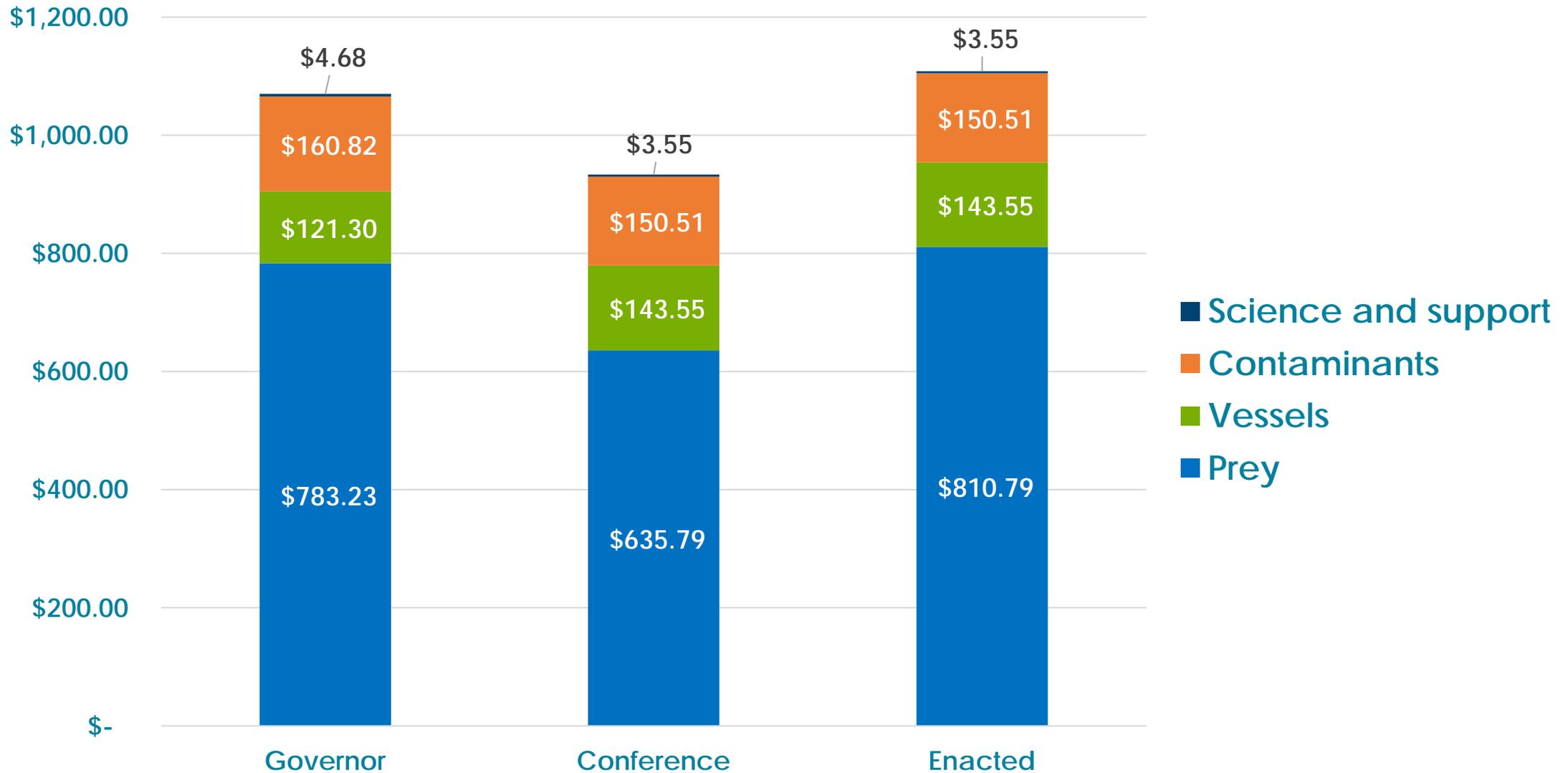


# Budget Update:

- The final **legislative budget** provides \$18.3 M less than the Governor's request in the operating budget, and \$152 million less in the **transportation budget**.
- The **capital budget** includes \$33.7 million more than the Governor's proposal in the capital budget.
- Based upon Governor Inslee's direction, the enacted budget is \$1.1 B. This includes full biennial funding (\$275M) in the **transportation budget** for WSDOT to meet the requirements of the culvert case.



# 2019-21 Orca funding by threat (dollars in millions):



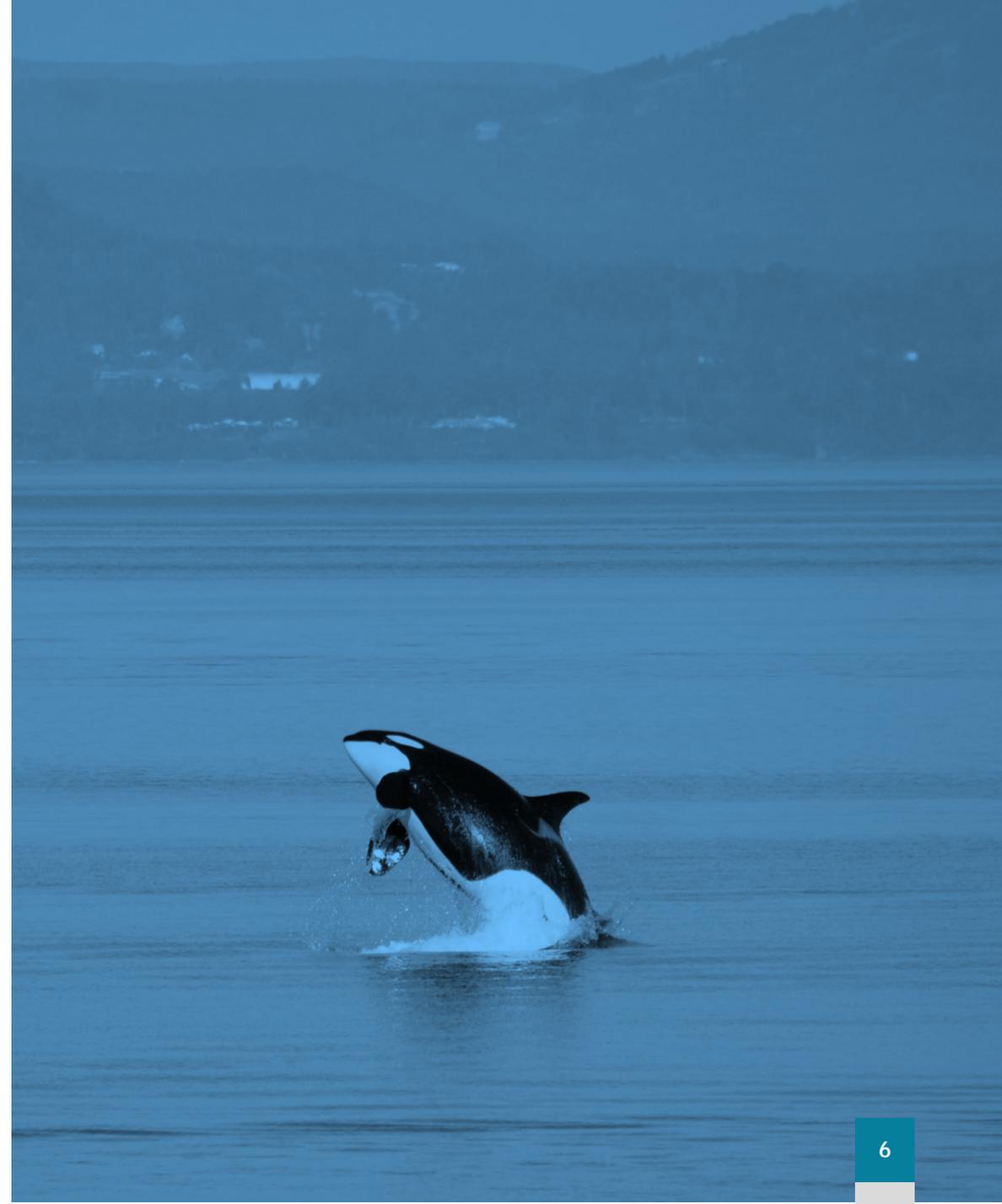
# Update on YR1 Recommendations

## Legend:

- = All pieces of recommendation are moving forward.
- = Some pieces of recommendation are moving forward.
- = Nothing happening yet; **not on track**.
- = Nothing happening yet; **still on track**.

# Goal 1: Increase Chinook abundance.

- Habitat
- Hatcheries
- Hydropower
- Harvest
- Predation
- Forage Fish



**Recommendation 1:** Significantly increase investment in restoration and acquisition of habitat in areas where Chinook stocks most benefit orcas.

**Recommendation 2:** Immediately fund acquisition and restoration of nearshore habitat to increase the abundance of forage fish for salmon sustenance.

**Progress:** ● / ● for both

- Many WG members viewed this as yellow. While it is great that there was more funding, funding levels are still too low. Recommendations call for “fully funding” key grant programs.
- Comparisons against Gov. proposal and agency request is useful but really need to compare what is funded against level of investment needed to get to recovery.

## Budget: Recommendations 1 & 2

- Significantly increase investment in restoration and acquisition of habitat for Chinook and forage fish.
- \$436 M capital, \$291 M transportation, \$8.59M operating.

## Outcomes

- This a 26% increase in capital funding (conference was \$72M more than Gov proposed).
- This is an 430% increase in DNR marine debris removal funding (800% increase requested).
- Provides 25% of funds needed to update 14 Puget Sound watershed Chinook recovery plans.

## WSDOT Fish Passage Barriers

- The final legislative transportation budget included \$100 M of the \$275 M requested by the Governor for WSDOT to implement the next phase of fish passage barrier projects necessary to meet the requirements of the federal culvert injunction.
- Based upon Governor Inslee's direction the final enacted budget will include the full \$275 M requested by the Governor for WSDOT to implement the next phase of projects necessary to comply with the federal culvert injunction.

## **Recommendation 3:** Apply and enforce laws that protect habitat.

### Progress: ●

- Federal agencies are rolling back many regulatory programs. Emphasizes need for state progress and leadership.
- What is being done and how is progress measured? (Additional FTE's may not equate to additional progress.)
- New legislation expands existing WDFW HPA authority and removes single-family, single-use exemption. Though it does not have the cumulative impacts, section included.

**Recommendation 4:** Immediately strengthen protection of Chinook and forage fish habitat through legislation that amends existing statutes, agency rule making, and/or agency policy.

**Progress:** ●

- HPA authority strengthened but does not include the cumulative impacts section that was in Rec.
- While progress was made around HPA, Growth Management Act (GMA) was discussed by prey WG. Because population growth is topic in year two, is there potential to look at GMA and other land use policies that may need strengthening to protect salmon habitat?

## Budget: Recommendations 3 & 4

- Increase Enforcement and Technical Assistance for HPA, Shoreline, Water Quality and Water Quantity Laws.
- Immediately strengthen protection of Chinook and forage fish habitat through legislation that amends existing statutes, agency rule making and/or agency policy. \$4.49 M GF-S operating.

### Outcomes

- 2 additional WDFW enforcement officers to enforce HPA and Shoreline laws (4 requested).
- 3 additional nonpoint water quality specialists funded as requested (\$707,000).
- 1.7 FTEs of additional water quality inspectors focused on point-source pollution (3FTEs requested).
- Phasing in 4.4 additional water masters in Puget Sound to enforce instream flow rules (6.5FTEs requested).
- Rulemaking for the Fishway, Flow and Screening statute funded as requested (\$616,000).

**Recommendation 5:** Develop incentives to encourage voluntary actions to protect habitat.

Progress: ●

- Recognition that there is a need for a tool to assist with quantifying the demand for, and capacity to provide incentive programs.
- Agencies ID all habitat incentive programs that connect orcas to salmon, provide the current demand, number of projects they can provide annually, wait times for new applicants, etc.

## Budget: Recommendation 5

\$1.8 M operating, \$11.8 M capital.

### Outcomes

- This a 25% increase (\$1 M) of the capacity for conservation districts to provide voluntary technical assistance.
- This is a 8% increase in capital programs for conservation districts.

**Recommendation 6:** Significantly increase hatchery production and programs to benefit SRKW consistent with sustainable fisheries and stock management, available habitat, recovery plans, and the ESA. Hatchery increases need to be done in concert with significantly increased habitat protection and restoration measures.

**Progress:** ●

- While significant funding received, did not fully reflect fundamental position of prey WG: it's about the number, size and locations where fish return for orcas. Some funding was provided for considering strategies to improve size and survival of hatchery fish, focus was mostly on increasing numbers.
- Ensure that there is package/request put together for monitoring and managing the number of potential fish returning (i.e. additional weirs, etc.)

## Recommendation 6 (continued)

### Progress: ●

- Did not adequately connect to increased habitat restoration. Success tied to habitat restoration recs that were underfunded, so outcome of all the recs disproportionately looks to hatchery production for an answer.
- What about wild fish? Hatchery is short-term. Need to make sure we aren't flooding the system with hatchery fish. Need to understand the where and how you increase production and how relates to wild fish. While increases must go through NOAA review, concern that scientific review may not be substantive enough to protect wild fish.

## Budget: Recommendation 6

\$13.5 M operating and \$40 M capital.

### Outcomes

- Funding provided to WDFW, Tribes and PUDs.
- This a \$2.0M more than requested by the Governor for production at WDFW, Tribal and PUD hatcheries.
- This is a 21% (\$6.7 M) increase in capital investment in the state hatchery system.

**Recommendation 7:** Prepare an implementation strategy to reestablish salmon runs above existing dams, increasing prey availability for Southern Resident orcas.

**Progress:** ●

- Considering other ongoing processes, what is the hard deliverable or deadline?
- In this process make sure we are considering how important spring Chinook are to orcas and overlay with climate change considerations.
- Natural next step is to implement, including get a better idea of fiscal needs for infrastructure that are coming.

**Recommendation 8:** Increase spill to benefit Chinook for Southern Residents by adjusting total dissolved gas allowances at the Snake and Columbia River dams.

**Progress:** ●

- ECY went to 120% standard this year with flexible spill and monitoring in place for a couple species.
- 125% standard change is open for comment.
- Implementation agreement is for flexible spill timing. When talking about potential benefits, ensure that we understand that it was for spill 24 hours a day. Flexible spill may not get that level of benefits. Also, actual data on returns will not be collected until smolts return as adults.

## Budget: Recommendations 7 & 8

### Recommendation 7

- Prepare an implementation strategy to reestablish salmon runs above existing dams - \$524,000 GF-S operating (fully funded)

### Recommendation 8

- Modify State Water Quality Standards for Greater Spill over Columbia River and Snake River Dams - \$580,000 GF-S operating

### Outcomes

- Estimated ~ 146,000 average adult Chinook returns with increased spill on Snake and Columbia River.

**Recommendation 9:** Establish a stakeholder process to discuss potential breaching or removal of the lower Snake River Dams for the benefit of Southern Resident orcas.

**Progress:** ●

- Needed immediate action, so timeline in rec was very ambitious, but could not make progress without funding and before legislative session finished.
- Suggest looking at the Klamath River process for guidance.

## Recommendation 10: Support full implementation and funding of the 2019-28 Pacific Salmon Treaty.

Progress: ● / ●

- Congressional visits and letters of support have been sent to key congressional members to gain momentum
- Some WG members expressed that in this process whales not at table – Orca language not in there

## Budget: Recommendations 9 & 10

### Recommendation 9

- Facilitate a Stakeholder process around the Lower Snake River Dam Removal - \$750,000 GF-S operating

### Recommendation 10

- Support full implementation and funding of the 2019-28 Pacific Salmon Treaty – Federal Request

### Outcomes

- Minimum of \$42.3 M in federal funding to Washington with up to \$10 M additional possible.

## Recommendation 11: Reduce Chinook bycatch in west coast commercial fisheries.

Progress: ●

- Mechanisms for reducing bycatch through gear modifications and fishing practices
- No specificity to an outcome. What is target that TF would consider for success on rec?

**Recommendation 12:** Direct the appropriate agencies to work with the tribes and NOAA to determine if pinniped (harbor seal and sea lion) predation is a limiting factor for Chinook in Puget Sound and along Washington's outer coast and evaluate potential management actions.

**Progress:** ●

- All priority science will not be finished because the \$1.2M state request was not funded. Also, independent panel and management panel not funded to move it forward.
- A recent workshop and upcoming report as an element of marine survival project can help to synthesize information on chinook predation that will help to move forward.

**Recommendation 13:** Support authorization and other actions to more effectively manage pinniped predation of salmon in the Columbia River.

**Progress:** ●

- The pieces of the recommendation that include support for the MMPA change and the application are in progress, but the implementation is not going to go forward fully without funding.
- WDFW is considering pursuing a supplemental budget request in anticipation of submitting a new Section 120(f) application.

## Budget: Recommendations 11, 12, & 13

### Recommendation 11

- Reduce Chinook bycatch in West Coast Commercial Fisheries – Governor Directive.

### Recommendation 12 and 13

- Develop Options for Pinniped Management in Puget Sound
  - Not funded (\$1.2 M was requested by Governor).
- Increase Management of Pinnipeds on the Columbia River
  - Not funded (\$1.2 M was requested by Governor).

**Recommendation 14:** Reduce population of nonnative predatory fish species that prey upon or compete with Chinook.

**Progress:** ●

- Need more detail on spatial scale for implementation: Includes all anadromous areas?
- Need to monitor the efficacy of these actions: Questions on effectiveness for bass in the Columbia because anglers are self-regulating the population (will continue to release)
- Request that WDFW report on any outreach activities they will do to encourage folks to help “fish-out” these invasive species.

**Recommendation 15:** Monitor forage fish populations to inform decisions on harvest and management actions that provide for sufficient feedstocks to support increased abundance of Chinook.

Progress: ●

- Monitoring needs to include full food web outside PS also
- Need to have the history and monitor from historic levels – don't want to manage from what exists now

**Recommendation 16:** Support the Puget Sound zooplankton sampling program as a Chinook and forage fish management tool.

**Progress:** ●

- Need to coordinate with existing efforts, including all the way up to AK
- Some questions on funding level- adequate for this year? One-time funding is not enough.

## Budget: Recommendations 14, 15, & 16

### Recommendation 14

- Support research to manage predatory fish near McNary dam - \$400 K GF-S operating (fully funded)

### Recommendation 15

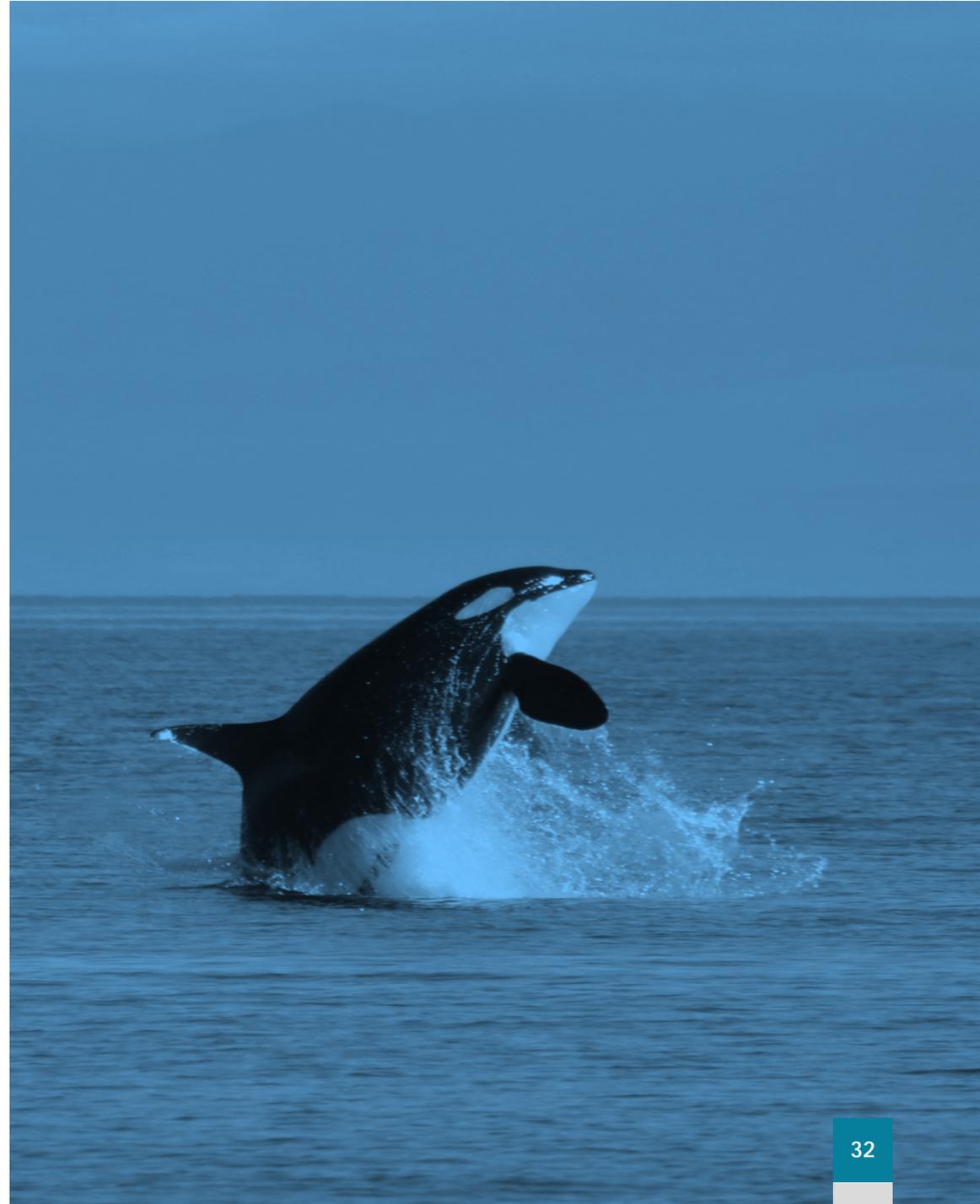
- Monitor and manage forage fish populations to support Chinook - \$743 K GF-S operating (fully funded)

### Recommendation 16

- Support the Puget Sound zooplankton sampling program for management of Chinook and forage fish - \$720,000 GF-S operating (fully funded)

## Goal 2: Decrease vessel and noise disturbances.

- Small vessels
- Echo sounders
- Ships and ferries
- Oil spills
- Vessel protections



## Budget: Vessels Recommendations

Major items funded in the final legislative operating budget include:

- \$1.5 M for Vessel and commercial whale watching regulation
- \$1.4 M for Oil Spill Tug escort

**Recommendation 17:** Establish a statewide “go-slow” bubble for small vessels and commercial whale watching vessels within half a nautical mile of Southern Resident orcas.

**Progress:** ●

- SSB 5577 passed by the Legislature, signed by Governor Inslee on 5/8/2019
- Funding provided to WDFW to implement the new laws
- Capacity for maximum patrol numbers in 2020

## Budget: Recommendation 17

- HB1580/SB5577 Vessel Bill = \$413,000
  - DFW – Orca Go Slow Enforcement - \$238,000
  - State Parks – Orca Go Slow Boater Education - \$150,000

**Recommendation 18:** Establish a limited-entry whale-watching permit system for commercial whale-watching vessels and commercial kayak groups in the inland waters of Washington state to increase acoustic and physical refuge opportunities for the orcas.

**Progress:** ●

- Signed into law in May
- WDFW to adopt rules for the commercial whale watching license system by January 1, 2021--based on best available science

## Budget: Recommendation 18

DFW = \$1.23M

**Recommendation 19:** Create an annual Orca Protection endorsement for all recreational boaters to ensure all boaters are educated on how to limit boating impacts to orcas.

**Progress:** ●

- Not included in Governors policy or budget priorities for legislative session
- WG wants to work on shifting emphasis to closing the education loophole for visiting (charter and rentals) and Canadian boaters

**Recommendation 20:** Increase enforcement capacity and fully enforce regulations on small vessels to provide protection to Southern Residents.

**Progress:** ●

- Funding for SSB 5577 was provided to WDFW to implement the new laws and will result in increased officer presence/number of patrols.

**Recommendation 21:** Discourage the use of echo sounders and underwater transducers within one kilometer of orcas.

**Progress:** ●

- PSP, US Coast Guard and other members of the Puget Sound Harbor Safety Committee now finalizing a draft Standard of Care
- Working Group recommends a near-immediate communications campaign/roll out – to maximize potential effectiveness in 2019 season

**Recommendation 22:** Implement shipping noise-reduction initiatives and monitoring programs, coordinating with Canadian and U.S. authorities.

Progress: ●/●

- Port of Seattle, WSF, NOAA, ECHO are actively organizing a stakeholder and tribal meeting for fall 2019
- Fundamental interests are to complement efforts of ECHO in Puget Sound (Washington waters of Salish Sea) and evaluate unique mitigation options in Washington

**Recommendation 23:** Reduce noise from the Washington state ferries by accelerating the transition to quieter and more fuel-efficient vessels and implementing other strategies to reduce ferry noise when Southern Residents are present.

**Progress:** ●

- Legislature funded one Jumbo Mark II hybridization retrofit and one new Olympic hybrid vessel
- Consultant selected for baseline fleet noise study
- Whale Report Alert System (WRAS) operational for run through Haro Strait

## Budget: Recommendation 23

The final transportation budget provides **\$140 million** to:

- Acquire one new hybrid electric ferry.
- Convert up to two existing ferries to hybrid electric.

**Recommendation 24:** Reduce the threat of oil spills in Puget Sound to the survival Southern Residents.

Progress: ●

- ESHB 1578 calls for the Board of Pilotage Commissioners to work with us to adopt rules for tug escorts
- Working Group wants to work on updating Killer Whale deterrence system in Exec. Order 18-02

## Budget: Recommendation 24

- \$1.37M to implement new tug escort rules.

**Recommendation 25:** Coordinate with the Navy in 2019 to discuss reduction of noise and disturbance affecting Southern Resident orcas from military exercises and Navy aircraft.

**Progress:** ●

- Six US Navy reps participated in Vessels Working Group with aim to strategically integrate and inform mitigation measures (use of WRAS, etc.)
- Public comment period for the Navy's Draft Supplemental EIS/OEIS open until June 12, 2019 at <https://www.nwtteis.com>

**Recommendation 26:** Revise chapter 77.15.740 RCW to increase the buffer to 400 yards behind the orcas.

Progress: ●

- Law took immediate effect in May

**Recommendation 27:** Determine how permit applications in Washington state that could increase traffic and vessel impacts could be required to explicitly address potential impacts to orcas.

**Progress:** ●

- Need direction from Governor's Office – agencies are waiting for ORIO to schedule a meeting
- Loophole is new use to existing facilities, but even high-speed ferries are example

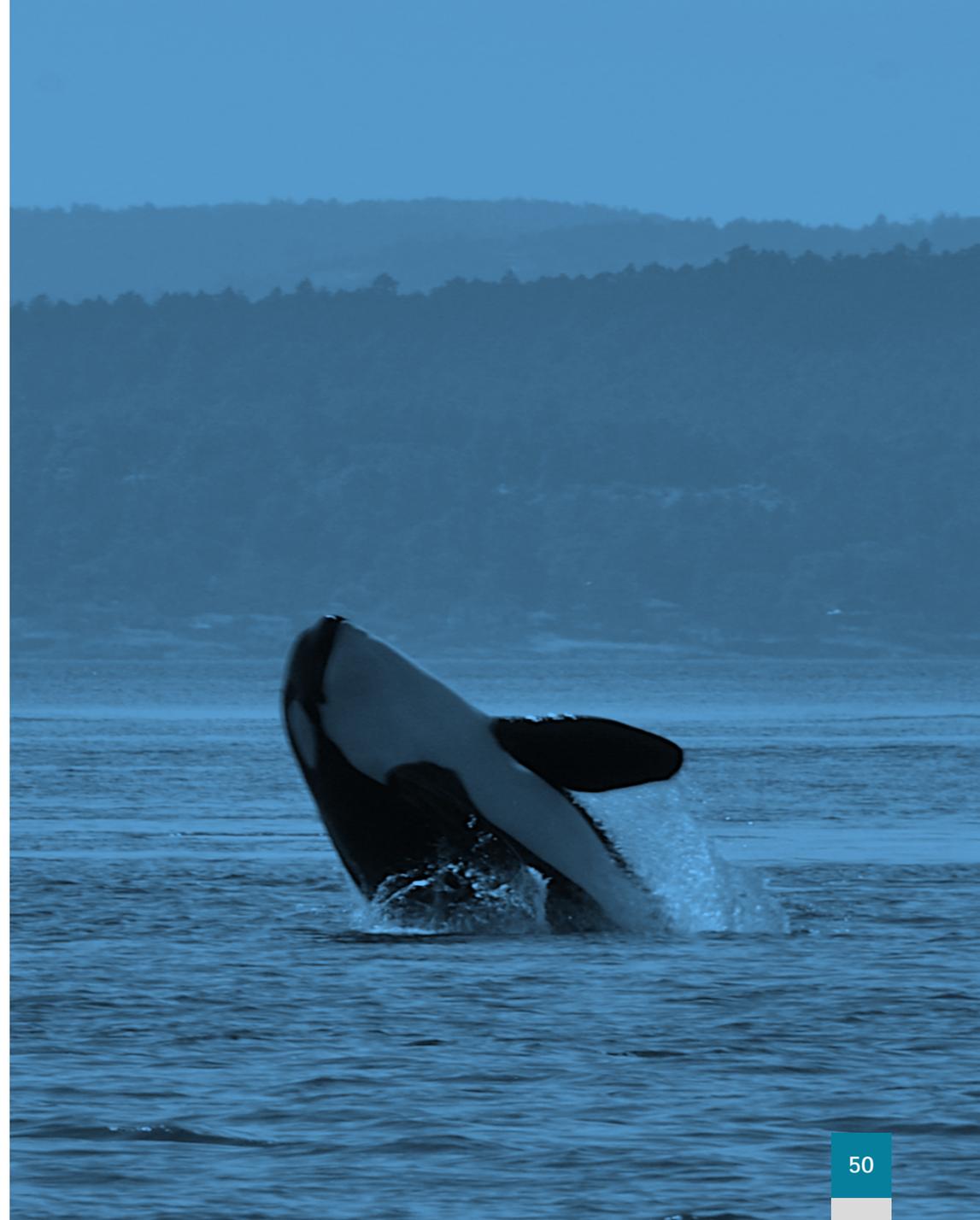
## **Recommendation 28:** Suspend viewing of Southern Resident orcas.

### Progress: ●

- This component was removed from the Governor's request legislation
- Viewpoints strongly split on this recommendation
- New ballot initiative in San Juan County and oppositional lawsuit

## **Goal 3:** Reduce exposure of orcas and their prey to contaminants.

- Prevent further use and release
- Removal and clean-up
- Permitting and management



**Recommendation 29:** Accelerate the implementation of the ban on polychlorinated biphenyls in state-purchased products and make information available online for other purchases.

Progress: ●

- Not clear on any progress.
- This a recommendation for DES—with input/direction from the Gov's office and Ecology.

**Recommendation 30:** Identify, prioritize, and take action on chemicals that impact orcas and their prey.

Progress: ●

- Prioritization—on track.
- Planning authority granted—with staff resources.
- Planning will inform management.

## Budget: Recommendation 30

- Orca: pharmaceuticals and wastewater = \$236K.
- ECY: \$3.7M (capital funding for pilot “swap-outs”).
- ECY: \$1M (enhanced product testing).
- ECY \$800K to implement Toxic Pollutant legislation (SSB 5135)

## **Recommendation 31:** Reduce stormwater threats and accelerate clean-up of toxics harmful to orcas.

### Progress: ●

- Lots of funding for cleanup and stormwater.
- Still work to be done to ensure it is targeted.
- Workgroup is energized to help!

# Budget: Recommendation 31

## Stormwater

- \$491,000 (toxics and juvenile Chinook).
- \$20M (2019- 21 – Centennial Clean Water).
- \$30M (2019-21 – Stormwater Financial Assistance).
- \$12m (2019-21 – Water Pollution Control Revolving Program).

## Clean-up

- \$1.5M (Expanded Cleanup Site Capacity).
- \$834K (Support Voluntary Clean-ups).
- \$2.5M (Derelict Vessel Removal).
- \$12.8M (2019-21 – Clean up Toxic Sites – Puget Sound).

**Recommendation 32:** Improve effectiveness, implementation, and enforcement of National Pollutant Discharge Elimination System permits to address direct threats to Southern Resident orcas and their prey.

**Progress:** ●

- Ecology is working to assess the permitting system.
- Funding for increased enforcement and assistance.
- Big lift—will require patience and perseverance.

## Budget: Recommendation 32

### Inspection staff:

- \$4.9m – point source
- \$7.07K – non-point source

**Recommendation 33:** Increase monitoring of toxic substances in marine waters; create and deploy adaptive management strategies to reduce threats to orcas and their prey.

**Progress:** ●

- Workgroup is committed to help with coordinating efforts.
- This needs to be scoped, coordinated, and funded.

## Goal 4: Ensure funding, information, and accountability mechanisms are in place to support effective implementation



### Recommendation 34:

- Provide **sustainable funding** for implementation of all recommendations.

### Recommendation 35:

- Conduct **research, science, and monitoring** to inform decision making, adaptive management and implementation of actions to recover Southern Residents.

**\$2.2M provided**

### Recommendation 36:

- **Monitor progress of implementation** and identify needed enhancements.

**\$682K provided**

# Summary

Goal 1: Prey	Goal 2: Vessels	Goal 3: Contaminants	Goal 4: Implementation
1 ●/●	17 ●	29 ●	34 ●
2 ●/●	18 ●	30 ●	35 ●
3 ●	19 ●	31 ●	36 ●
4 ●	20 ●	32 ●	
5 ●	21 ●	33 ●	
6 ●	22 ●/●		
7 ●	23 ●		
8 ●	24 ●		
9 ●	25 ●		
10 ●/●	26 ●		
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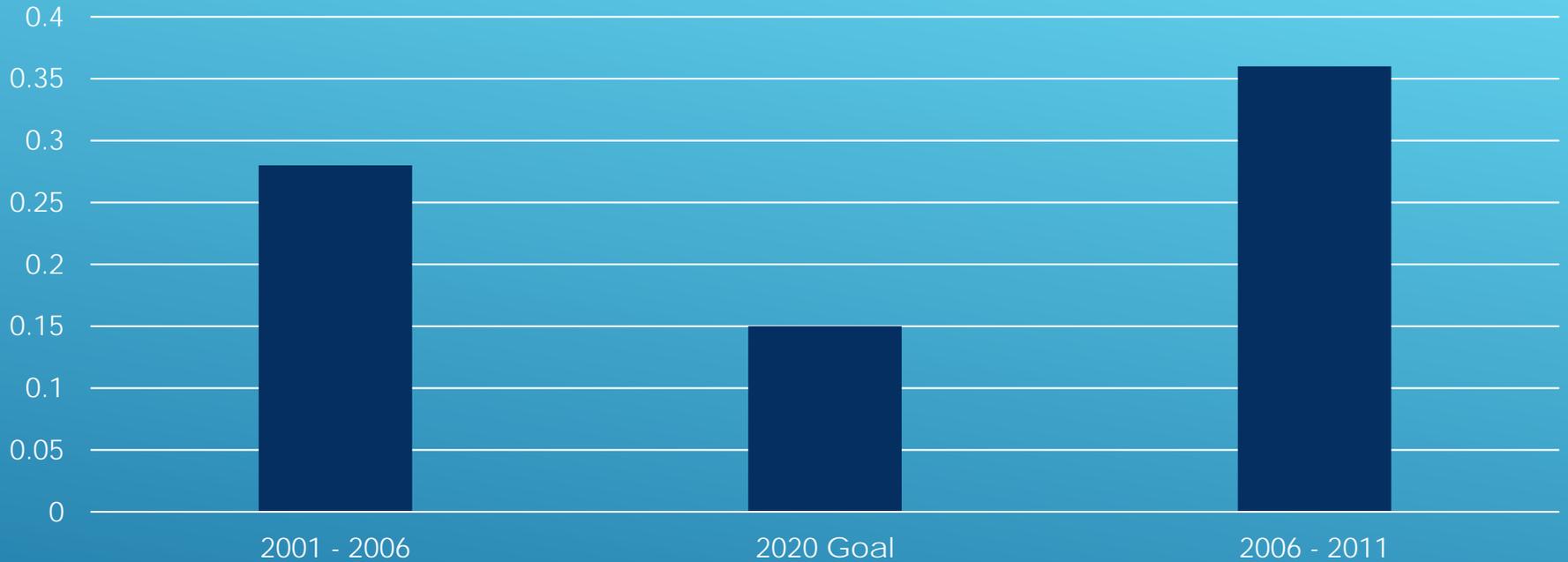
# POTENTIAL IMPACTS OF GROWTH ON ORCAS

Will Hall, Mayor, City of Shoreline

June 3, 2019

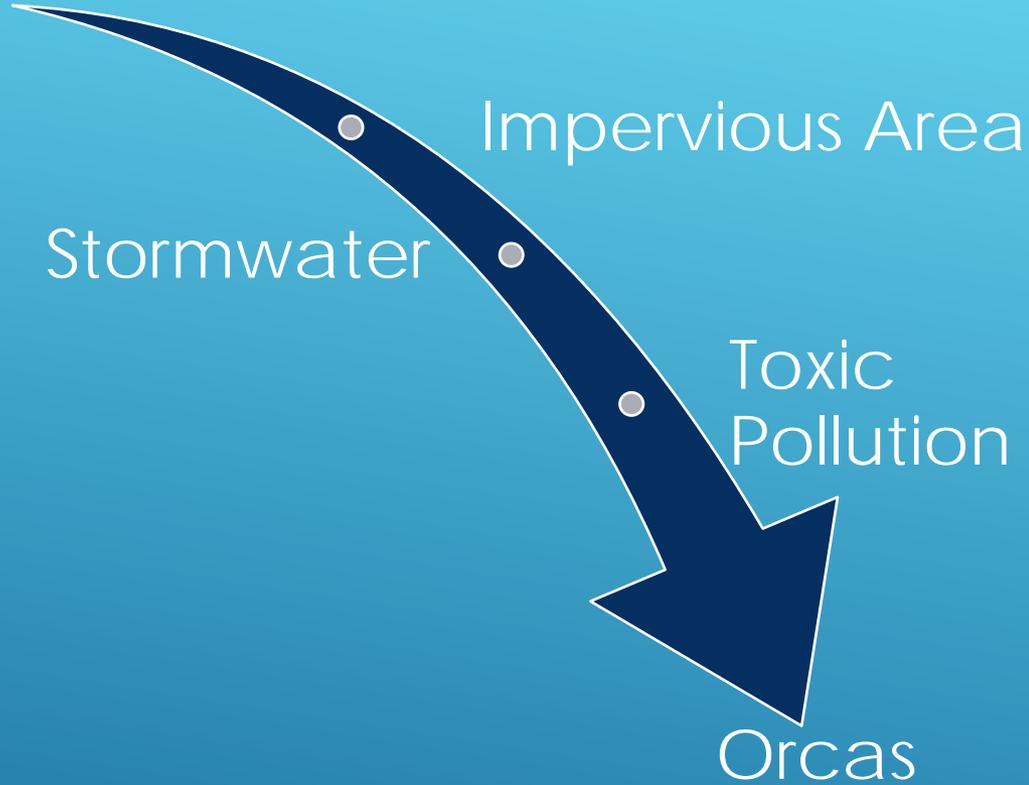


## Conversion of Ecologically Important Lands



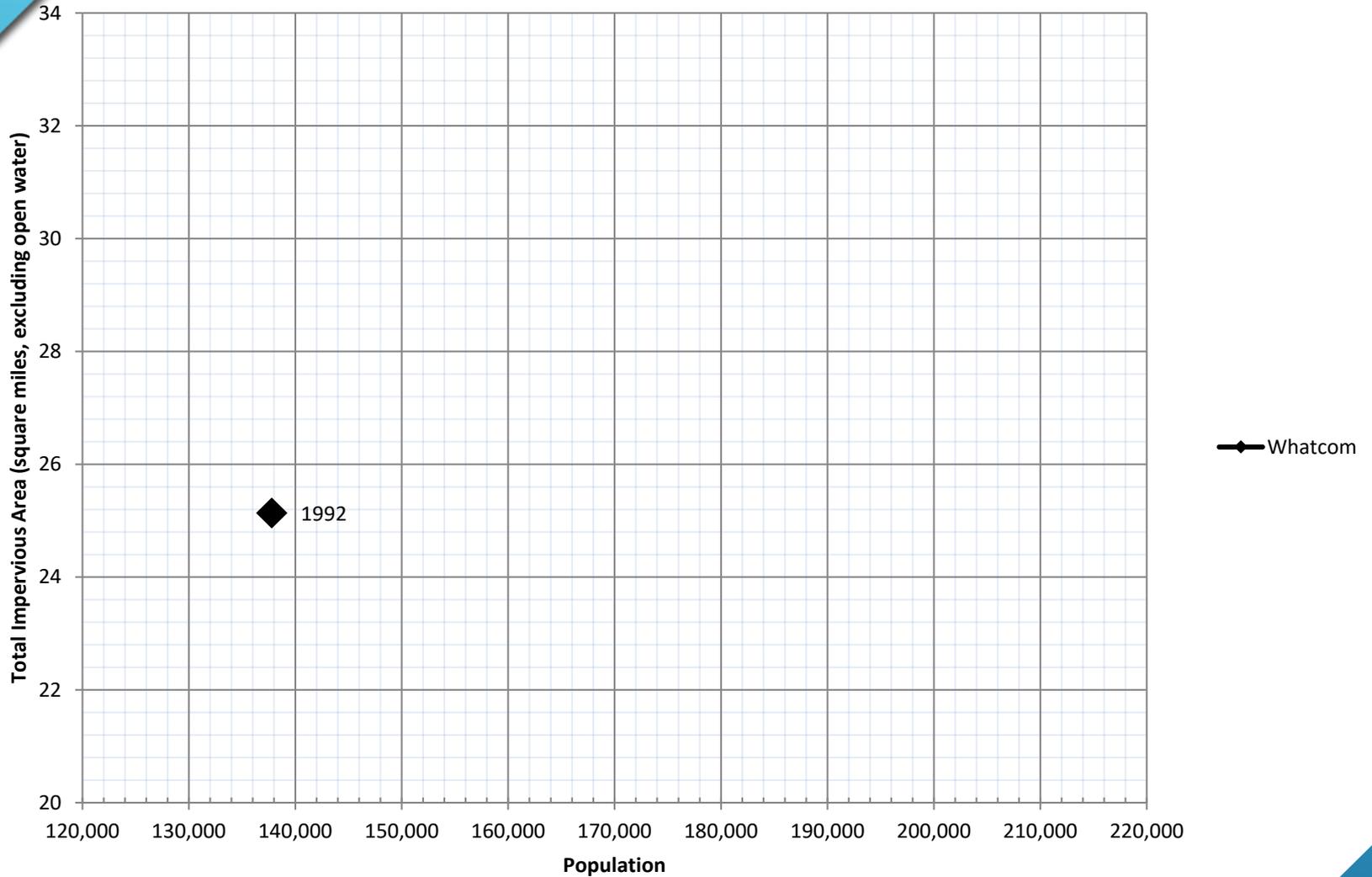
LOSS OF RIPARIAN AREAS  
CONTINUES

Population

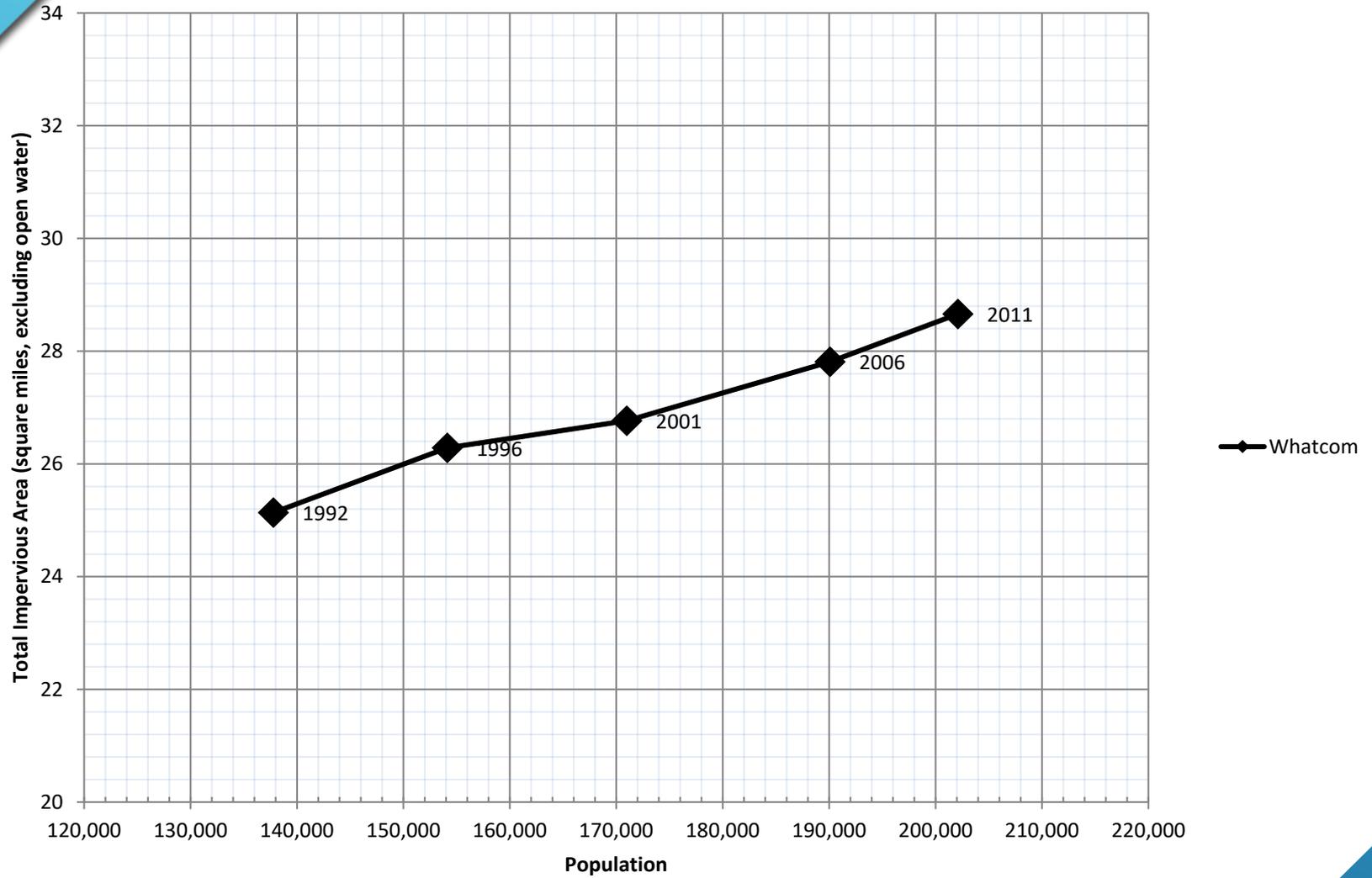


EXAMPLE: IMPERVIOUS AREA

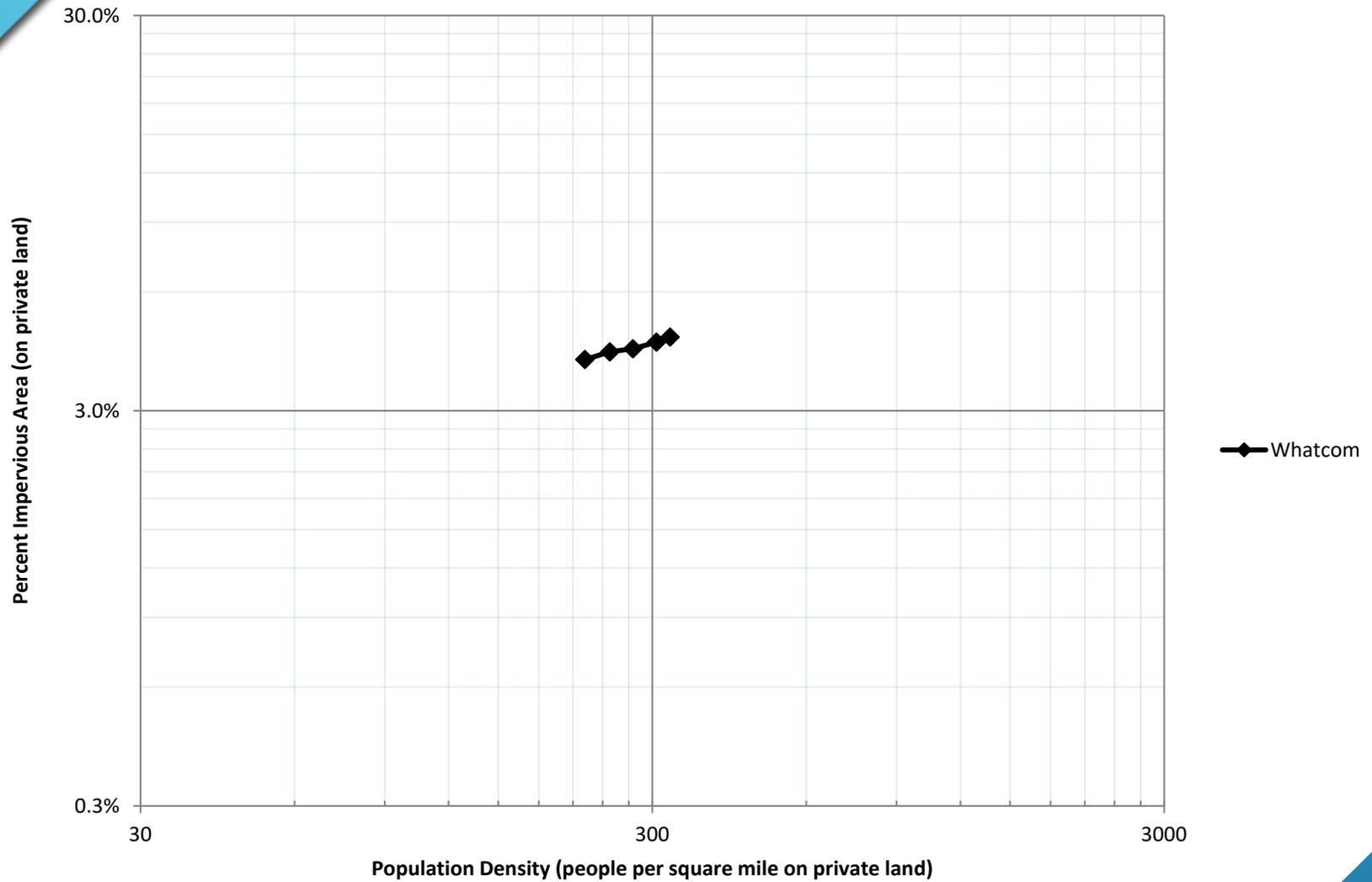
# Population and Impervious Area, Whatcom County, 1992



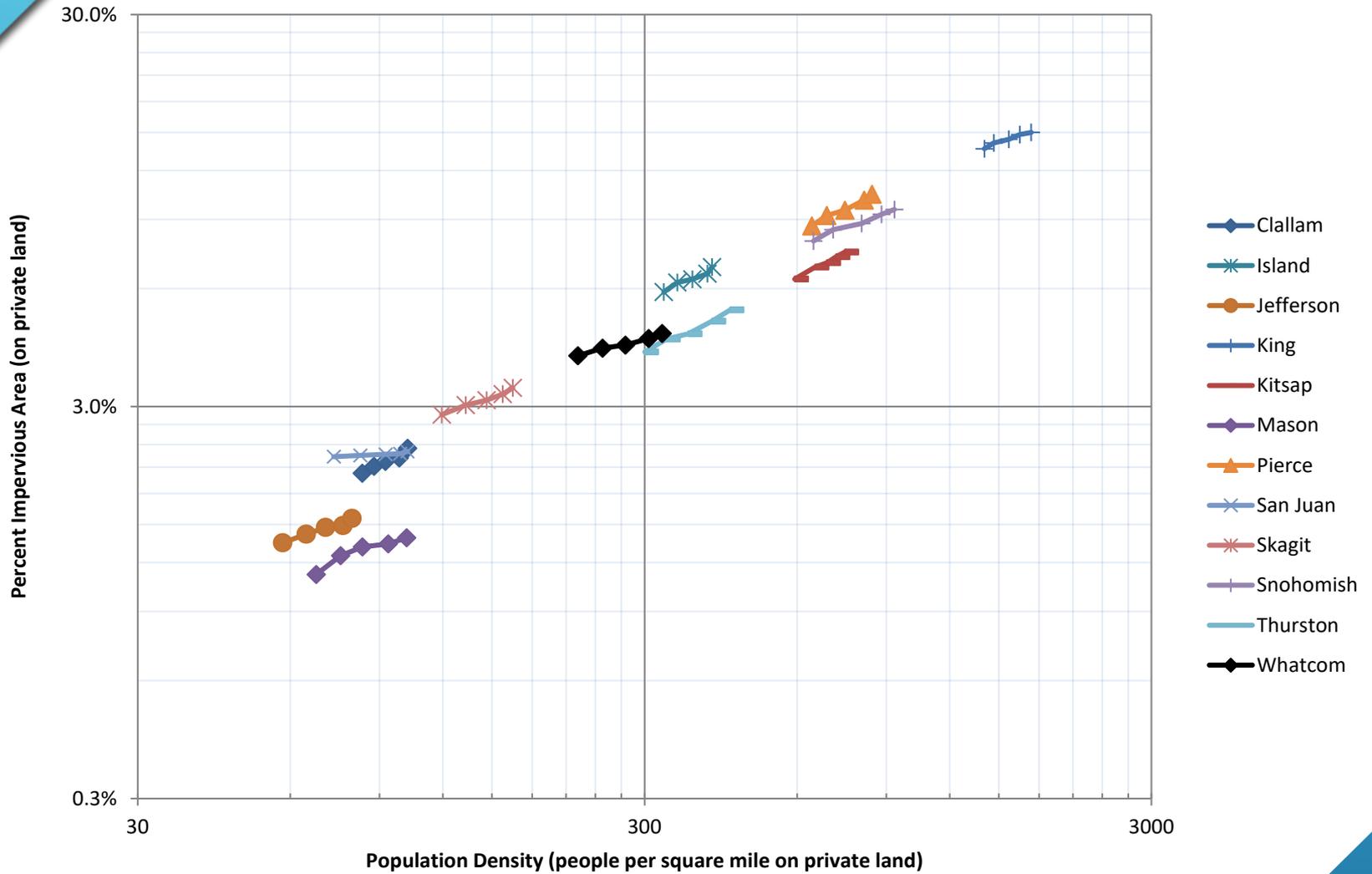
# Population and Impervious Area, Whatcom County, 1992, 1996, 2001, 2006, and 2011



# Population Density and Percent Impervious Area, Whatcom County, 1992, 1996, 2001, 2006, and 2011



# Population Density and Percent Impervious Area Puget Sound and Straits, 1992, 1996, 2001, 2006, and 2011



County	Impervious Area (Square Miles)			2018 - 2050 Low		2018 - 2050 High	
	2018	2050 Low	2050 High	Increase (sq. mi.)		Increase (sq. mi.)	
Clallam	17	17	20	0	0%	4	21%
Island	14	14	19	0	0%	5	38%
Jefferson	6	6	8	0	0%	2	32%
King	177	189	208	12	7%	31	18%
Kitsap	26	26	41	0	0%	14	55%
Mason	9	9	11	1	6%	2	24%
Pierce	105	113	141	8	8%	37	35%
San Juan	4	4	4	0	0%	0	6%
Skagit	25	27	36	2	10%	11	46%
Snohomish	77	83	95	6	7%	18	24%
Thurston	32	36	49	4	11%	17	52%
Whatcom	29	31	38	1	5%	9	29%
Puget Sound	520	553	669	33	6%	150	29%

WE WILL ADD BETWEEN 33 AND 150  
 SQUARE MILES OF NEW IMPERVIOUS  
 AREA IN PUGET SOUND  
 WATERSHEDS BY 2050

14TH AVE

NE 180TH ST

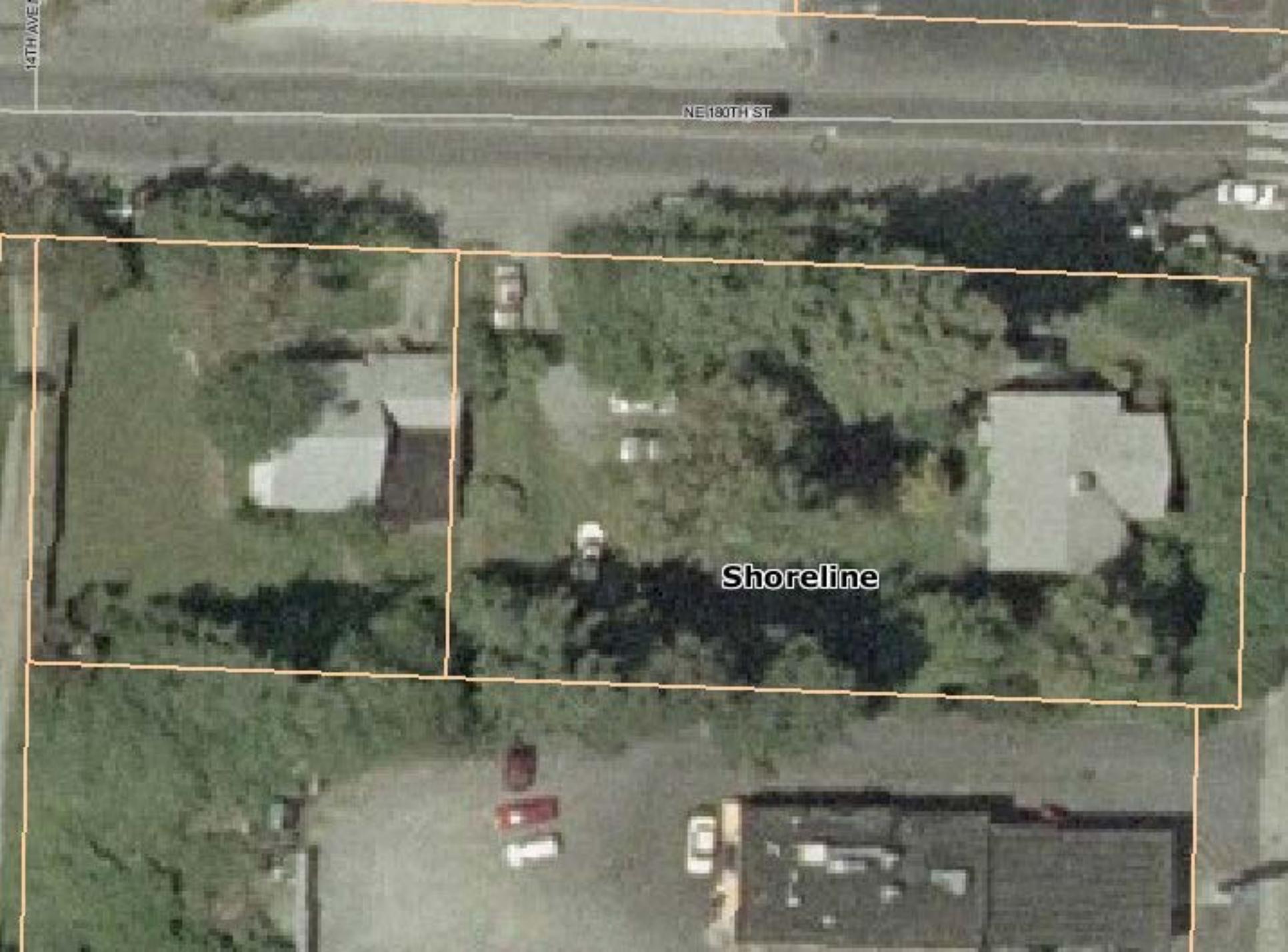
Shoreline

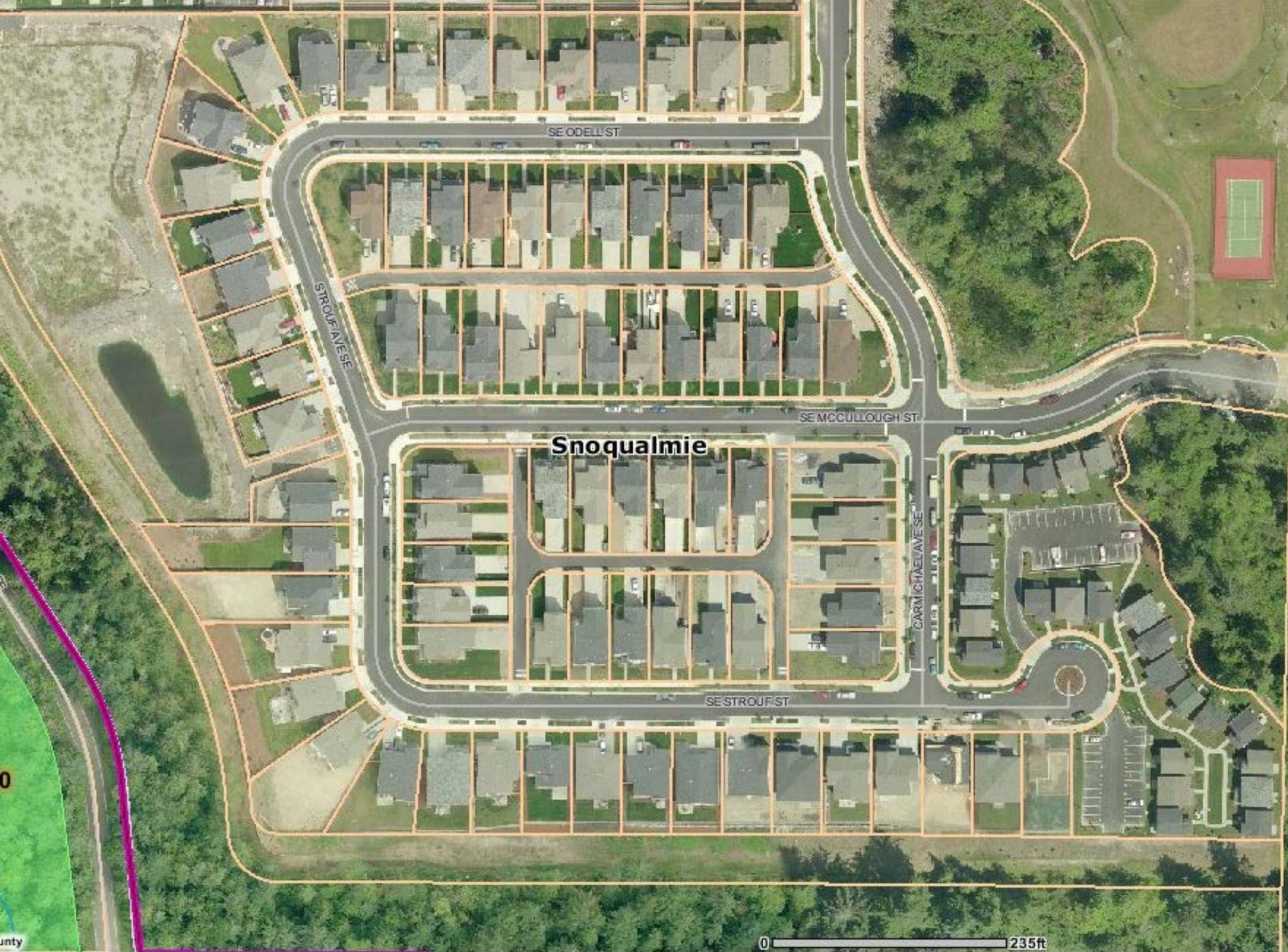


14TH AVE

NE 190TH ST

Shoreline





**Snoqualmie**

SE ODELL ST

STROUF AVENUE

SE MCCULLOUGH ST

CARMICHAEL AVE SE

SE STROUF ST

0 235ft

County



SE ODELL ST

SE STROUF AVE SE

SE MCCULLOUGH ST

**Snoqualmie**

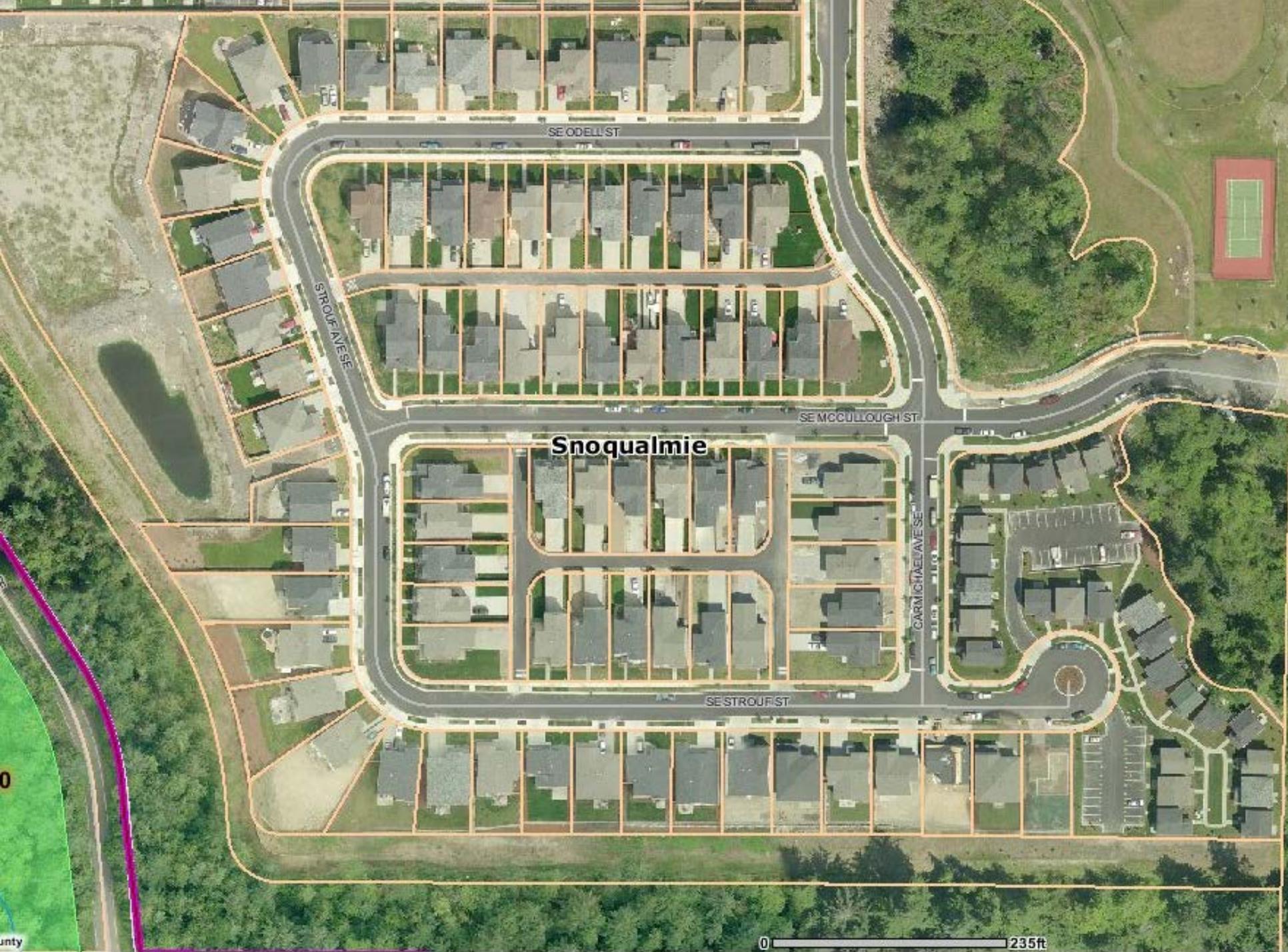
CARMICHAEL AVE SE

SE STROUF ST

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unty

0 235ft



**Snoqualmie**

SE ODELL ST

STROUF AVENUE

SE MCCULLOUGH ST

CARMICHAEL AVE SE

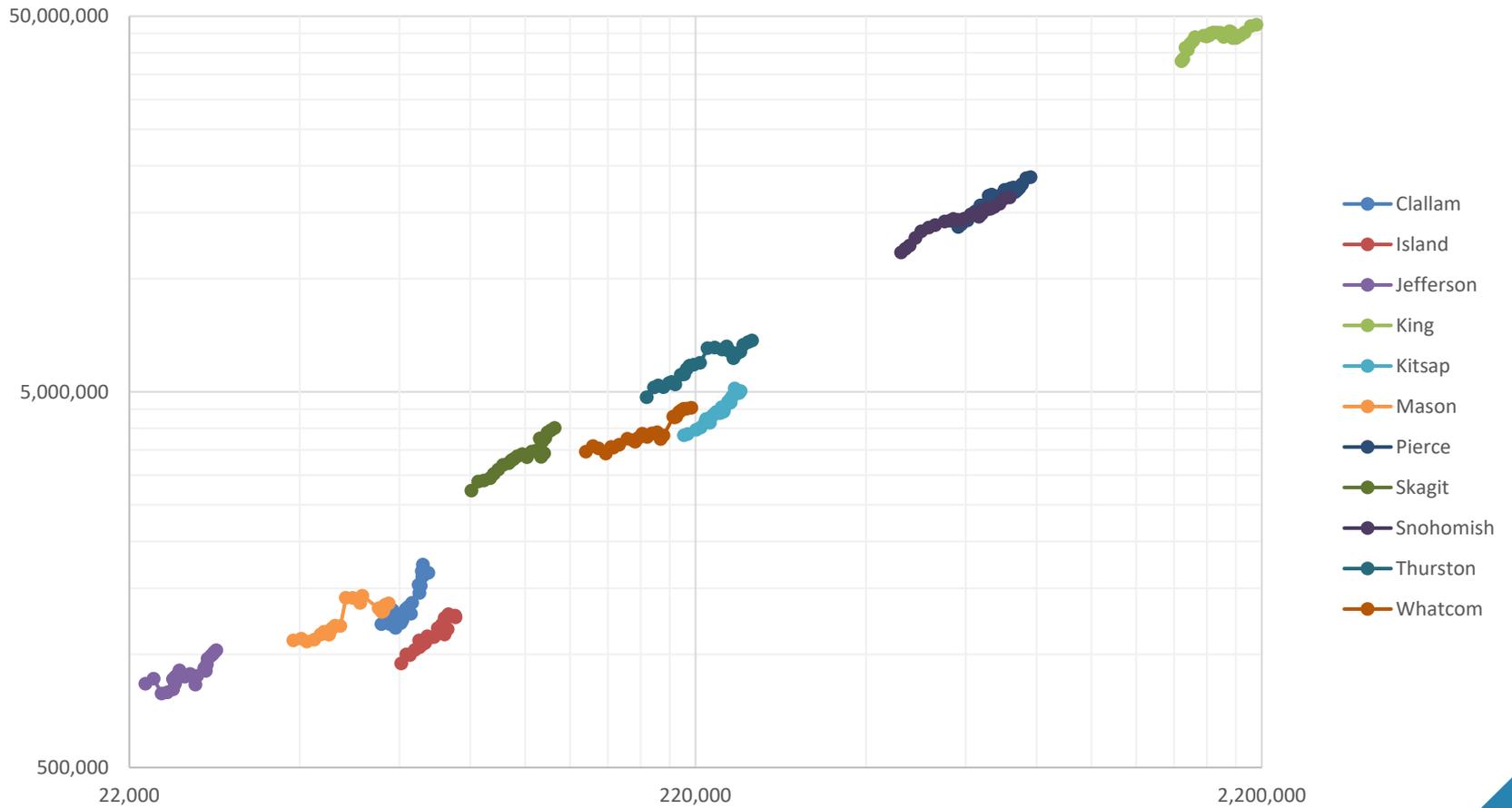
SE STROUF ST

0 235ft

County



# Population and Daily Vehicle Miles Traveled, Puget Sound and Straits Counties, 1993 - 2017



# SUMMARY

- ▶ The impacts of future population growth and development on orcas could be significant
- ▶ How, where, and how much we grow are all important
- ▶ Growth management and improved regulations are helping to reduce impacts in some areas
- ▶ Our first year recommendation 35 asked for research into the effect of our recommendations under a range of reasonable future growth scenarios
- ▶ Can we get that information in time to know if we are doing enough?

# VISION 2050

Orca Task Force Meeting

June 3, 2019

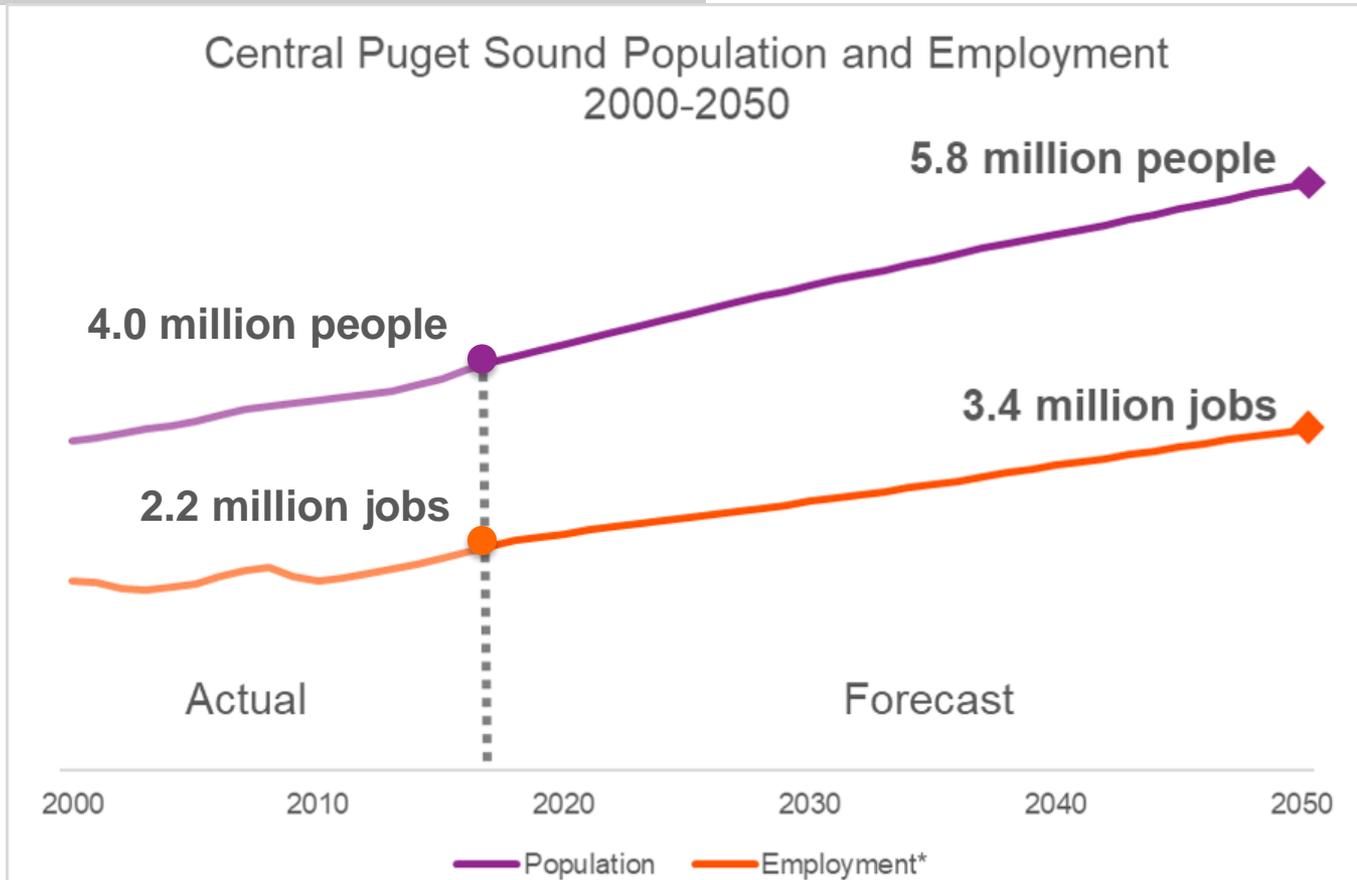


# The Central Puget Sound

- 4 million people
- 82 cities and towns, 4 counties
- 1,000 square mile urban areas
- 6,400 total square miles
- 8 Watersheds



# 2050 Forecast



# A more diverse region

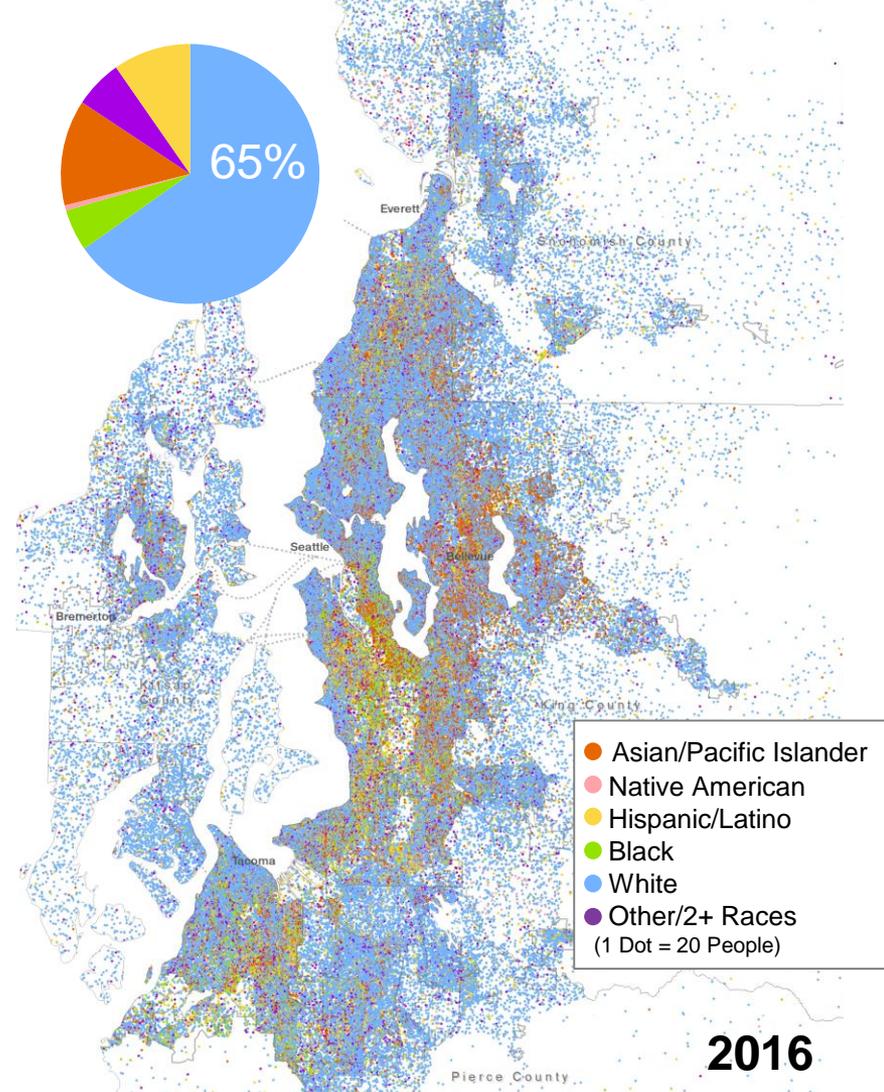
## People of color in the region

- Currently 35% of the population
- Represent **81% of the growth** since 2000

Hispanics, with growth of 130% since 2000, now are **10% of the region's population**

People of color are more dispersed throughout the region

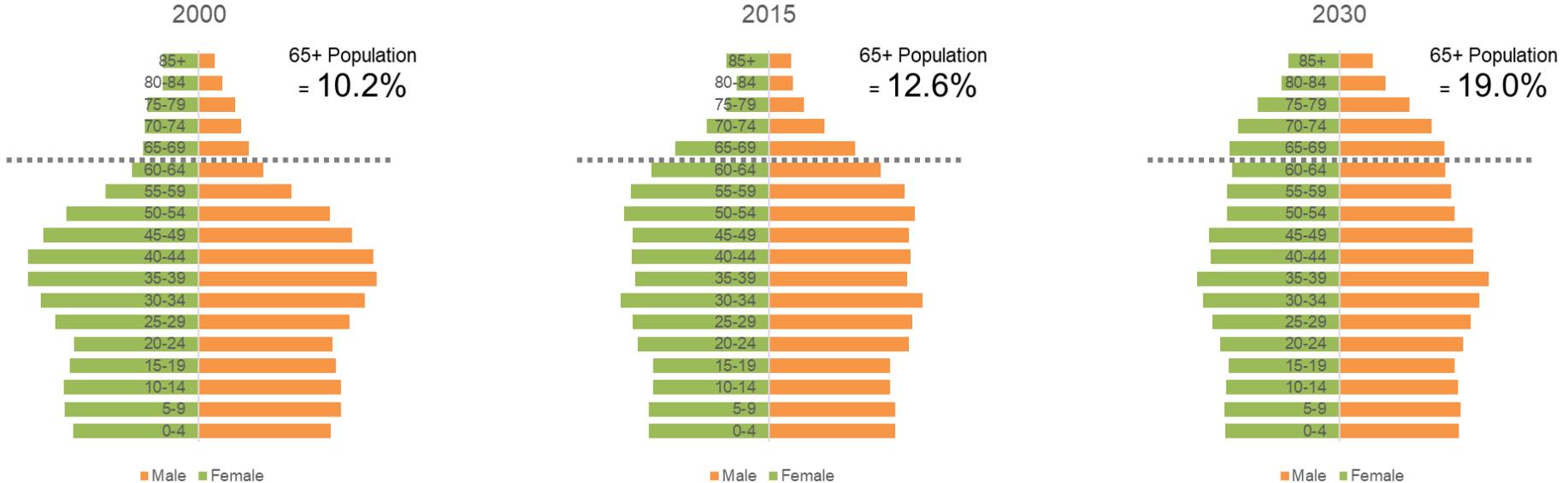
Source: 1990, 2000, 2010 Decennial Census; 2016 American Community Survey



# The region is getting older



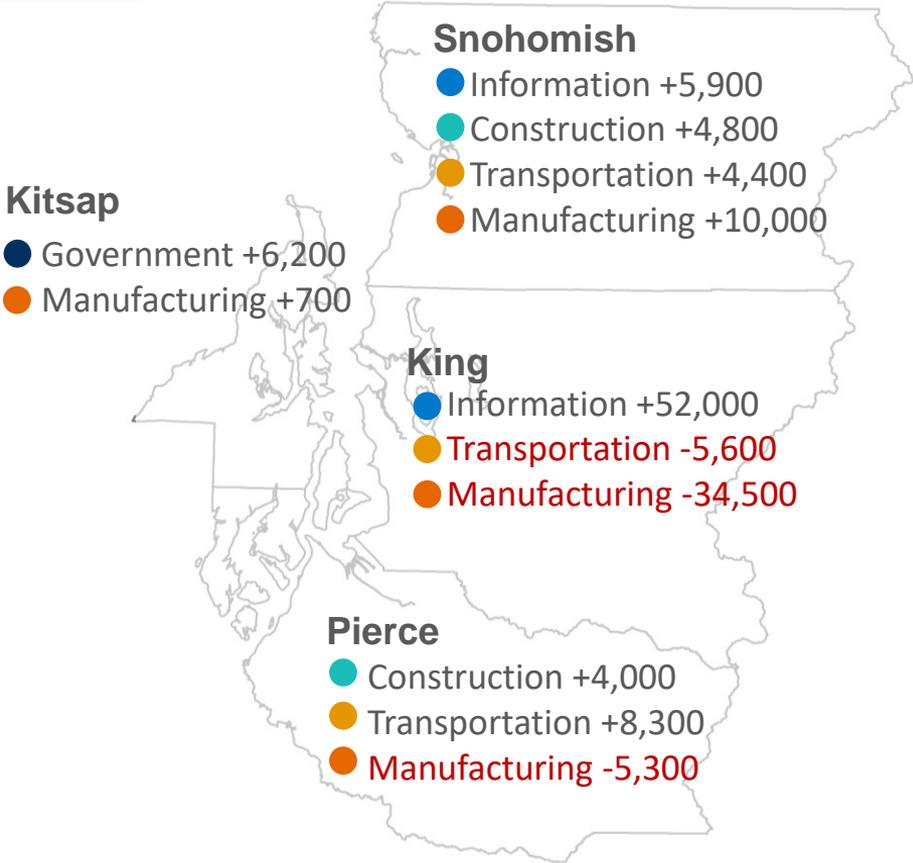
By 2030, nearly **1 in 5** of the region's residents will be seniors, nearly double the share in 2000



# Job growth by sector



Regional change by sector  
2000-2016



Source: PSRC Covered Employment Estimates

Suburbs are changing



# Preserving open space

Regionally, 96% of permitted housing units are in cities and urban areas

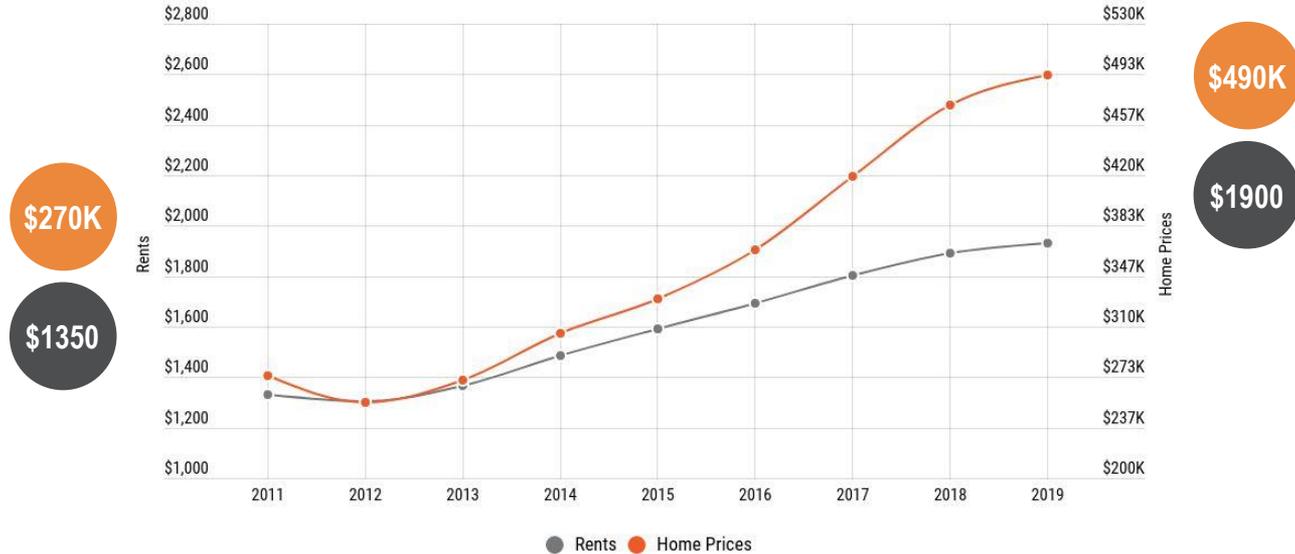
Compared to 72% in 1991



# Housing costs climb



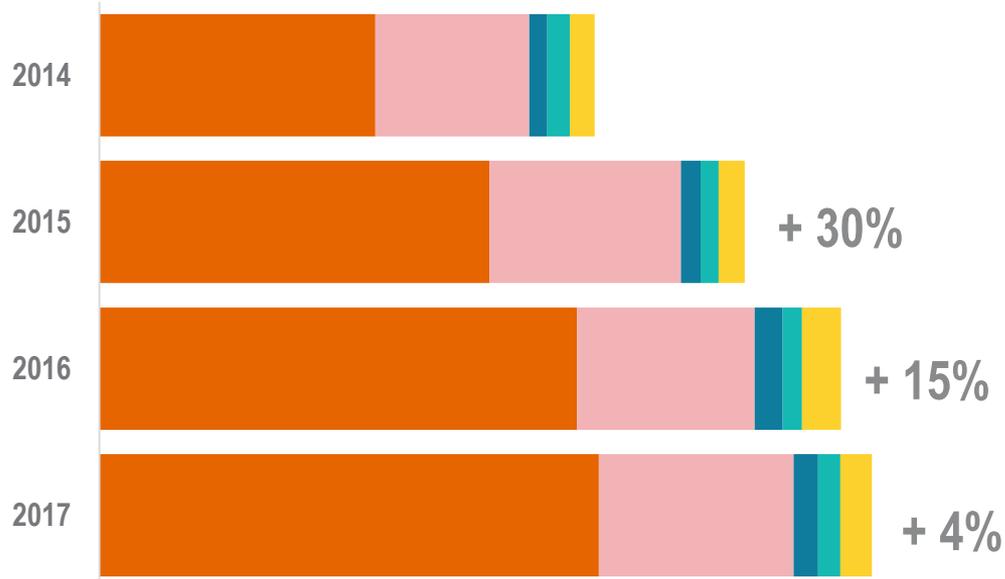
## Central Puget Sound Metro Area Home Prices and Rents



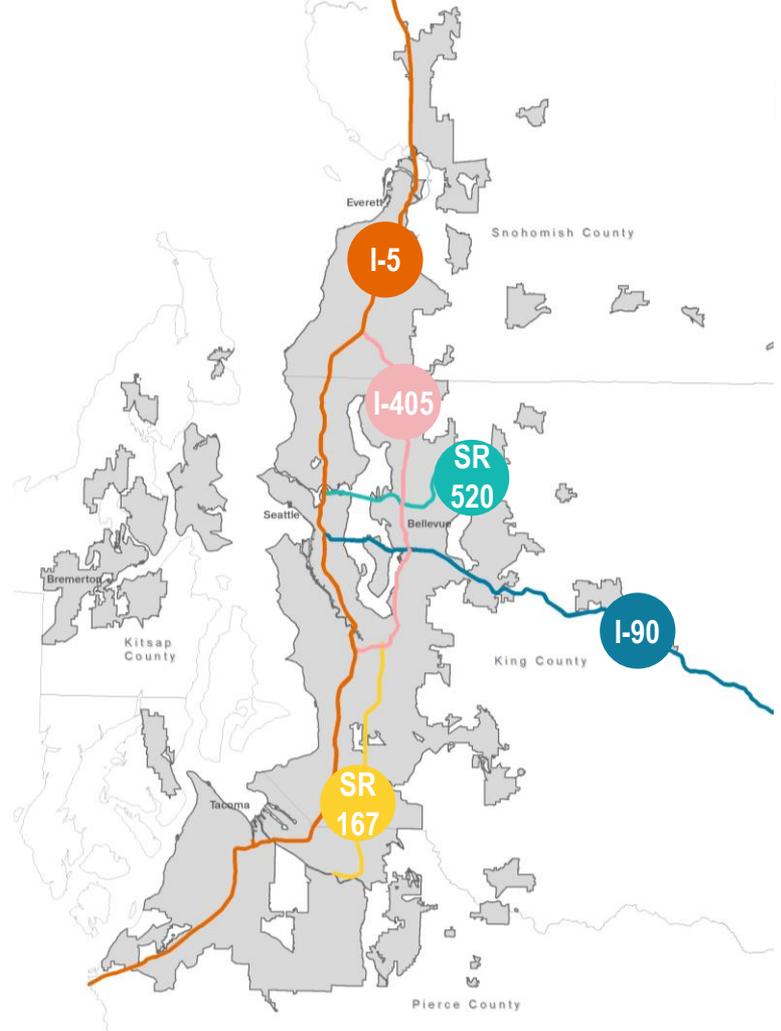
Source: Zillow (Zillow.com/data, acquired on 5/13/19)

Note: Data are for the Seattle-Tacoma-Bellevue MSA, which does not include Kitsap County; median home prices are for all homes, including single family homes and condominiums; median rents are for the multifamily (5+ unit) rental stock.

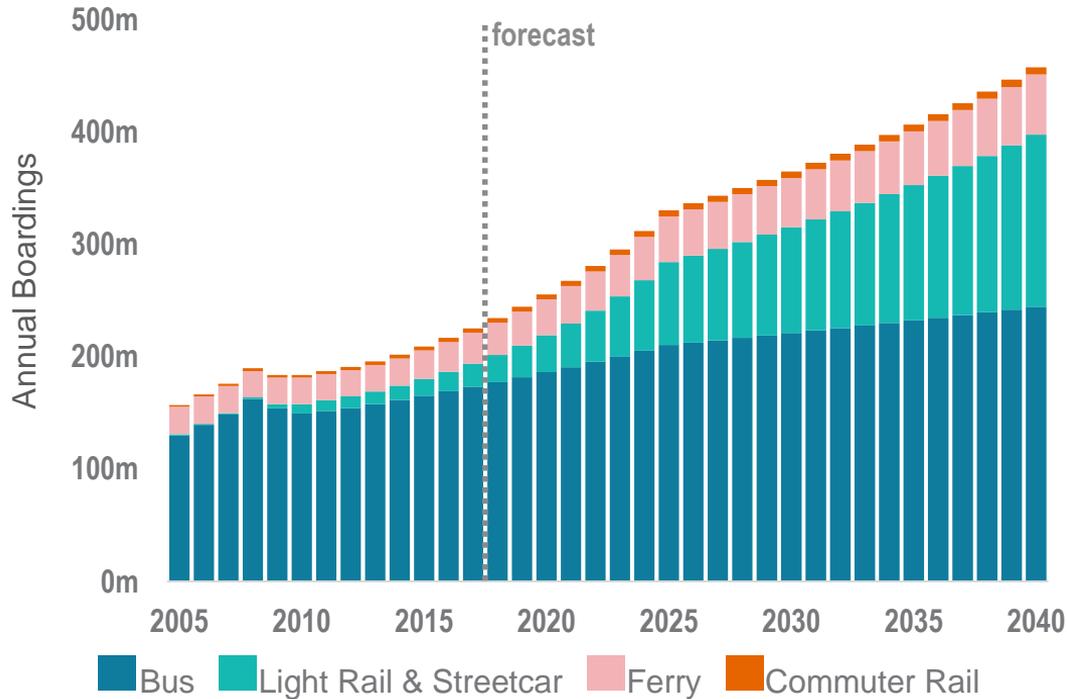
# Travel times are increasing



Vehicle hours of delay by freeway corridor



# So is transit ridership



2018 marked the 8<sup>th</sup> straight year of increased transit ridership; up 21% since 2010

Driving alone is 5<sup>th</sup> lowest in the nation

**80%** of the region's population will be within a 10 minute walk of transit in 2040

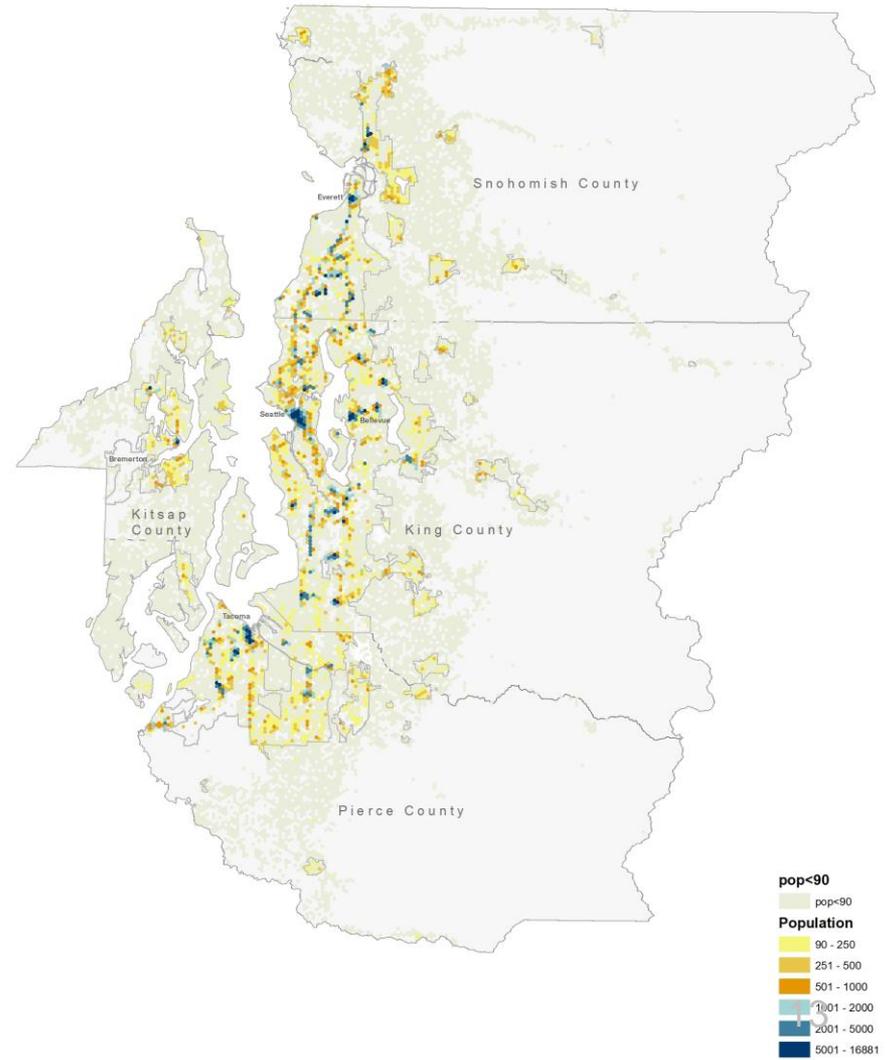


# VISION 2050 Growth Alternatives



# Transit Focused Growth

- Goal for 65% of region's population and 75% of job growth to occur near planned high capacity transit
- Compact walkable places
- Increase middle-density housing options
- Less growth in rural and unincorporated areas without high capacity transit
- Preservation of farm land and open space



# Impacts

- Average drive times and distances will be less, but time spent stuck in traffic will increase
- Transit ridership more than doubles
- Air quality will improve, and greenhouse gas emissions will be reduced
- All require about 830,000 new housing units
- Redevelopment will increase the threat of displacement, which will require mitigation to be avoided

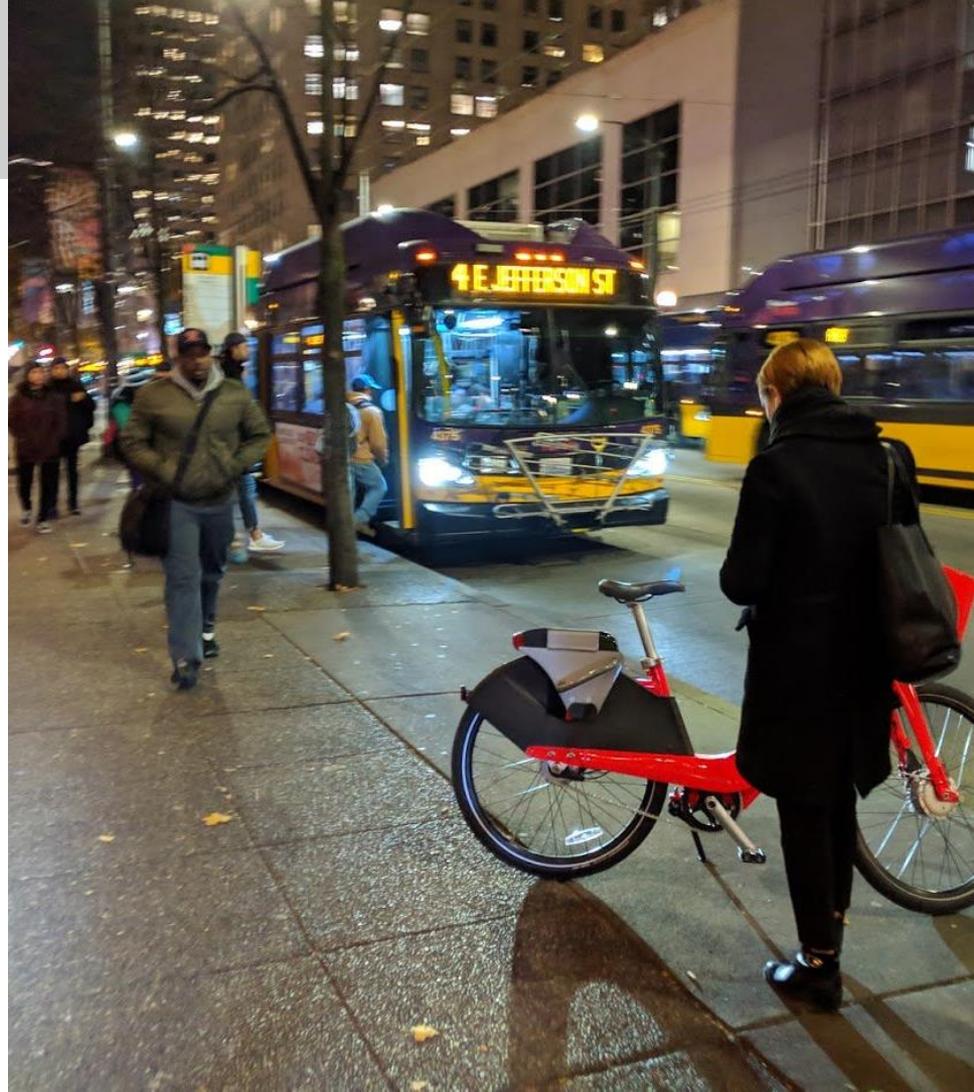
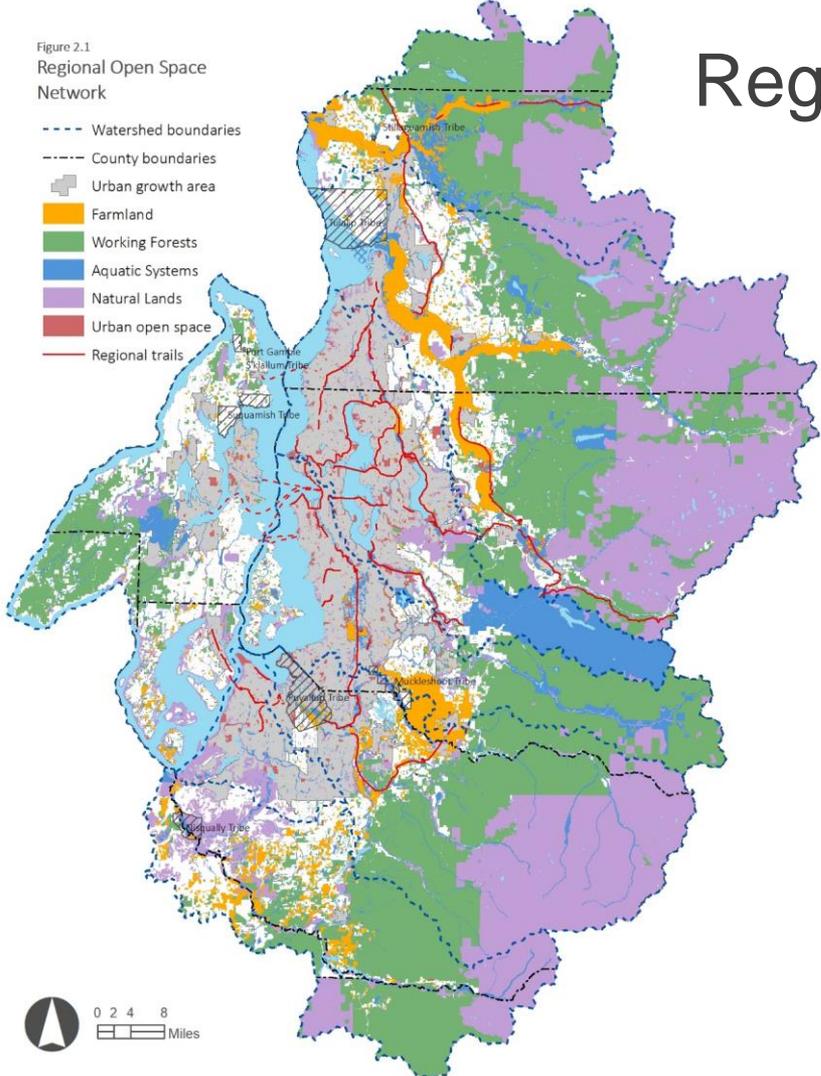
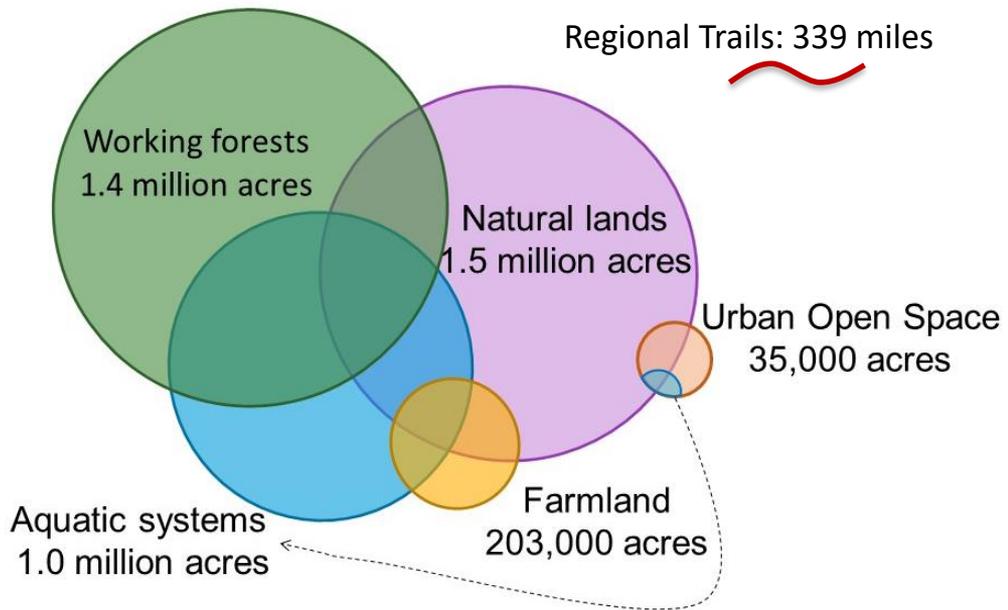


Figure 2.1  
Regional Open Space  
Network

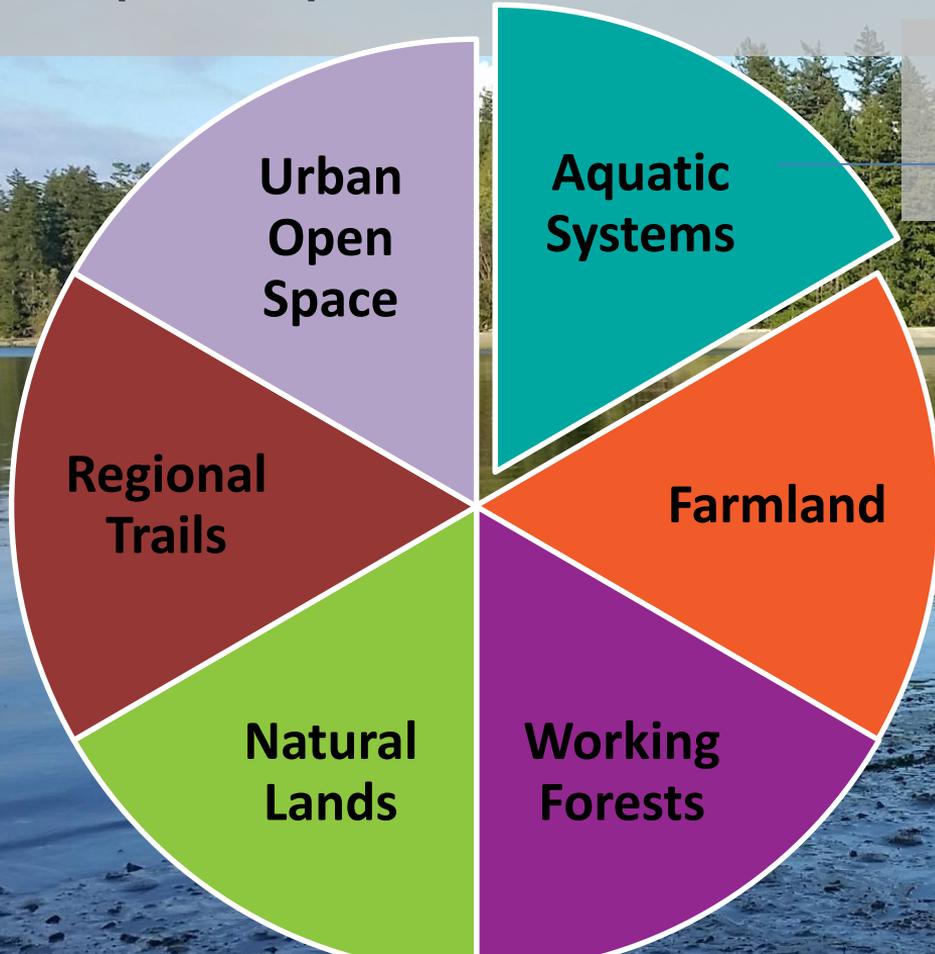
- Watershed boundaries
- County boundaries
- Urban growth area
- Farmland
- Working Forests
- Aquatic Systems
- Natural Lands
- Urban open space
- Regional trails



# Regional Open Space Network



# Regional Open Space Conservation Plan



- Floodplains
- Salmon and forage fish habitat
- Riparian corridors
- Drinking water source areas



# Open Space Policy Areas for VISION 2050

- Protecting and restoring open space
- Improving water quality
- Increasing access to parks, trails and open space
- Mitigating climate impacts through open space carbon sequestration





# Thank you.

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# SRKW Task Force – Population Growth

June 3<sup>rd</sup>, 2019





***“When one tugs at a single thing in nature, he finds it attached to the rest of the world” ~ John Muir***

# Human-related impacts on fish and wildlife

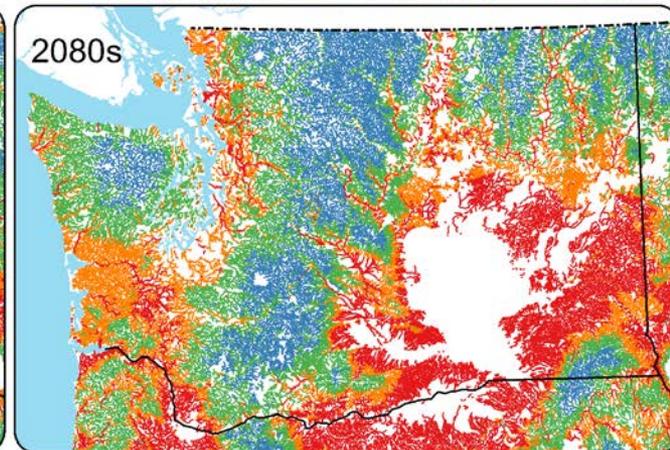
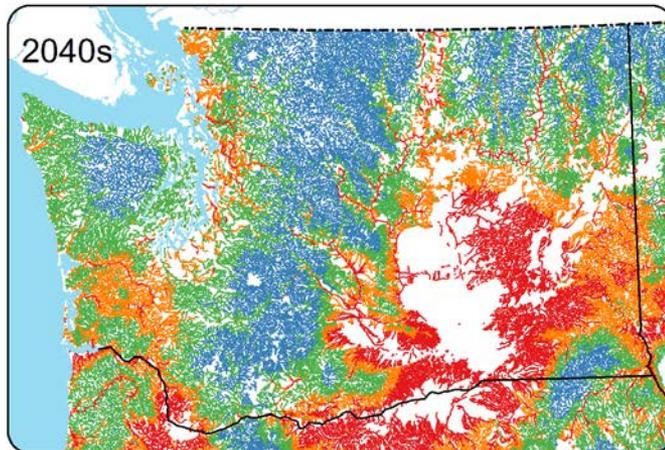
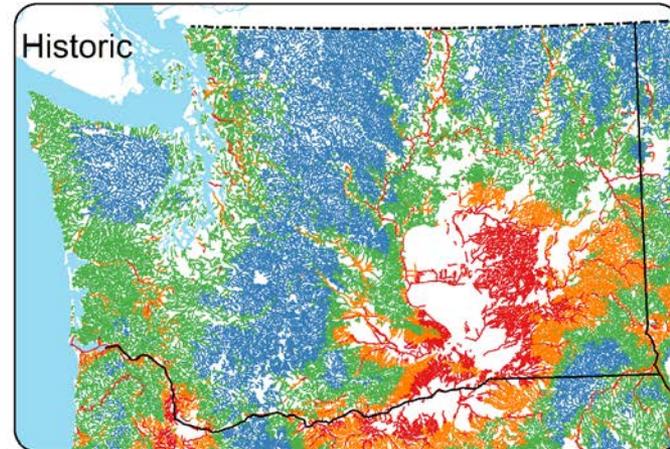
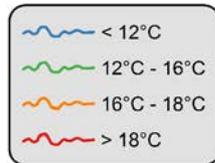
- Habitat loss or degradation  
*(development, conversion for land use, replaced with non-natives, global warming)*
- Migration barriers  
*(roads and corridor reduction/removal)*
- Human interactions  
*(pesticides/chemicals/pharmaceuticals, conflict, pets, invasive species, etc.)*





# Climate Change Impacts

## Stream Temperatures



**August mean air temp – moderate (A1B) warming scenario**

Data source: NorWeST; Figure source: Climate Impacts Group (Rob Norheim)

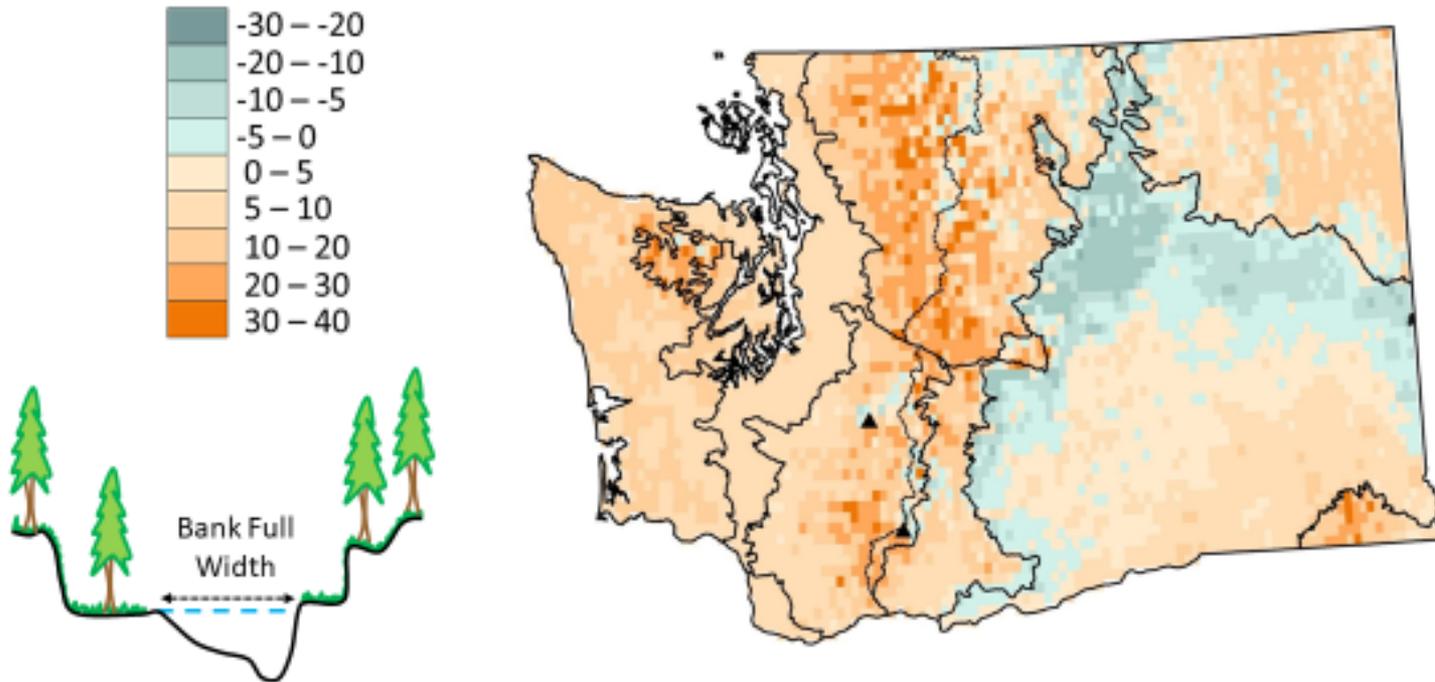


# Climate-Resilient Culvert Design

## Climate Change Projections & Culvert Design

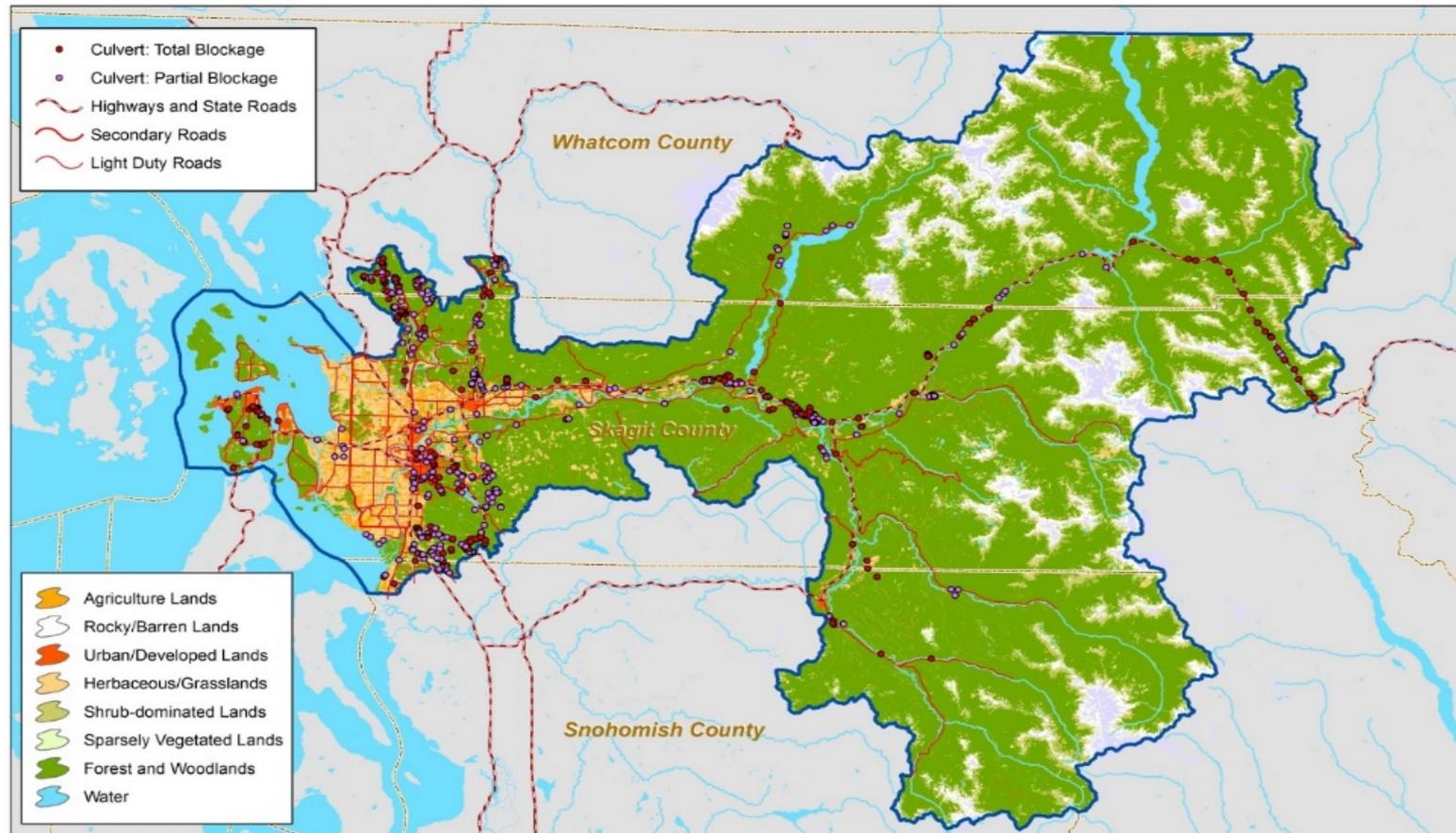


### Potential % Change in Bank Full Width in 2080s



# WDFW Habitat Protection Actions:

## Land Use



# WDFW Habitat Restoration Actions:

- Floodplains
- Riparian
- Fish passage
- Instream flows
- Forest health



# Urban Opportunities:

- Restoring native trees and plants
- “Green” or “biophilic” infrastructure
- Affordable housing
- Transportation



**We are going to be successful!**  
**Our future depends on it!**



# Questions?

