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Agenda Item F.3.a  
Supplemental NMFS Presentation 1  
September 2021

NMFS Report

# Southern Oregon / Northern California Coast Coho Evolutionarily Significant Unit (ESU) NMFS' Considerations

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# Purpose

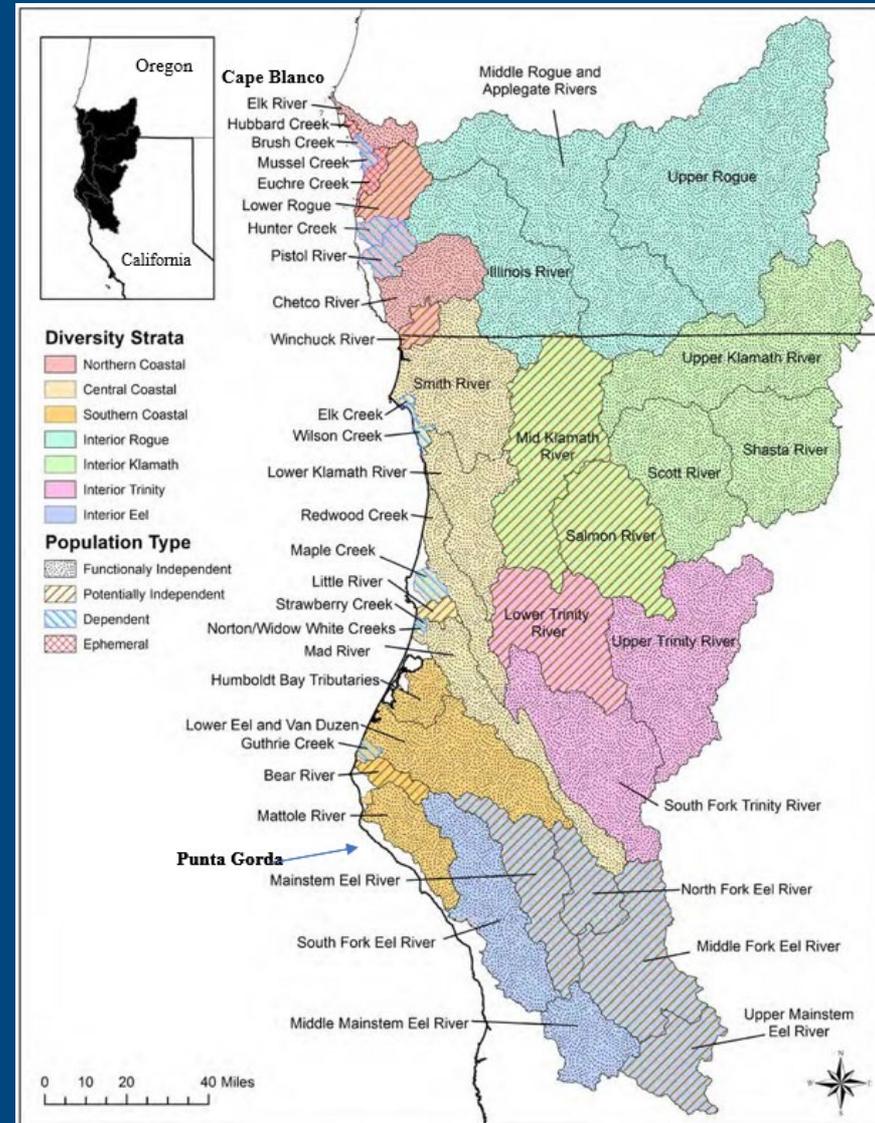
- This presentation is designed to provide the Council with NMFS' observations and information considered on the risk assessment for the Southern Oregon / Northern California Coast Coho Salmon ESU.



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# SONCC Coho ESU

- Listed as threatened on the Endangered Species Act (ESA) in 1997 (62 FR 24588)
- Recovery Plan finalized in 2014
- 40 populations divided into 7 strata
  - all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon and Punta Gorda, California, as well as coho salmon produced by three artificial propagation programs



# SONCC Coho ESU

The 7 strata populations are classified into historical and functional roles within the ESU

The order of priority is as follows:

- Core pops (17)
- Non-Core 1 (9)
- Dependent (10)
- Non-Core 2 (4)

Core and Non-Core 1 populations are important to recovery of the ESU

All but a few of these populations are currently at high risk but most need to be recovered to low risk to recover the ESU

Stratum	Populations	Risk Status	Risk Goal	Recovery Role	Recovery Criteria	Depensation Threshold <sup>a</sup>
Northern Coastal Basin	<b>Elk R</b>	High	Low	Core	2,400	63
	Brush Creek	High	Juveniles	Dependent	--	--
	Mussel Creek	High	Juveniles	Dependent	--	--
	Lower Rogue R	High	Moderate	Non-core 1	320	81
	Hunter Creek	High	Juveniles	Dependent	--	--
	Pistol Creek	High	Juveniles	Dependent	--	--
	<b>Chetco River</b>	High	Low	Core	4,500	135
Winchuck River	High	Moderate	Non-core 1	230	57	
Central Coastal Basin	<b>Smith River</b>	High	Low	Core	6,800	325
	Elk Creek	High	Juveniles	Dependent	--	--
	Wilson Creek	High	Juveniles	Dependent	--	--
	<b>Lower Klamath River</b>	High	Low	Core	5,900	205
	<b>Redwood Creek</b>	High	Low	Core	4,900	151
	Maple Creek/Big Lagoon	--	Juveniles	Dependent	--	--
	Little River	Moderate	Moderate	Non-core 1	140	34
	Strawberry Creek	--	Juveniles	Dependent	--	--
Norton/Widow White Crk	--	Juveniles	Dependent	--	--	
Mad River	High	Moderate	Non-core 1	550	136	
Southern Coastal Basin	<b>Humboldt Bay tributaries</b>	Moderate	Low	Core	5,700	191
	<b>Lower Eel/Van Duzen R</b>	High	Low	Core	7,900	394
	Guthrie Creek	--	Juveniles	Dependent	--	--
	Bear River	High	Juveniles	Non-core 2	--	--
Mattole River	High	Moderate	Non-core 1	1,000	250	
Interior Rogue River	<b>Illinois River</b>	High	Low	Core	11,800	590
	Middle Rogue/Applegate R	High	Moderate	Non-core 1	2,400	603
	<b>Upper Rogue River</b>	Moderate	Low	Core	13,800	689
Interior Klamath	Middle Klamath River	Moderate	Moderate	Non-core 1	450	113
	<b>Upper Klamath River</b>	High	Low	Core	8,500	425
	<b>Shasta River</b>	High	Low	Core	4,700	144
	<b>Scott River</b>	Moderate	Low	Core	6,500	250
	Salmon River	High	Moderate	Non-core 1	450	114
Interior Trinity	<b>Lower Trinity River</b>	High	Low	Core	3,600	112
	South Fork Trinity River	High	Moderate	Non-core 1	970	242
	<b>Upper Trinity River</b>	Moderate	Low	Core	5,800	365
Interior Eel	<b>Mainstem Eel River</b>	High	Low	Core	2,600	68
	<b>Middle Mainstem Eel R</b>	High	Low	Core	6,300	232
	Upper Mainstem Eel River	High	Juveniles	Non-core 2	--	--
	Middle Fork Eel River	High	Juveniles	Non-core 2	--	--
	<b>South Fork Eel River</b>	Moderate	Low	Core	9,300	464
	North Fork Eel River	High	Juveniles	Non-core 2	--	--

# Available data very limited

The Workgroup’s RA report summarizes data from these reviews and provides updated contemporary data on abundance for the following populations

- Sufficient information for 6 population/population units of the 40 populations
  - All important to recovery of the ESU
  - All generally at high risk but need to be at low risk to recover ESU
- Represents 5 of the 7 ESU strata (or Regions)
- Data is limited in all strata and for 2 it is sparse

Stratum	Populations	Risk Status	Risk Goal	Recovery Role	Recovery Criteria	Depensation Threshold <sup>2</sup>
Northern Coastal Basin		High		Core		
		High		Dependent		
		High		Dependent		
	Lower Rogue River	High	Moderate	Non-core 1		
		High		Dependent		
		High		Dependent		
Central Coastal Basin		High		Core		
		High		Non-core 1		
		High		Core		
		High		Dependent		
		High		Dependent		
		High		Core		
		High		Core		
		High		Core		
		--		Dependent		
		Moderate		Non-core 1		
Southern Coastal Basin		--		Dependent		
	Humboldt Bay tributaries	Moderate	Low	Core		
		High		Core		
		High		Non-core 2		
		High		Non-core 1		
Interior Rogue River	Illinois River	High	Low	Core		
	Middle Rogue/Applegate R.	High	Moderate	Non-core 1		
	Upper Rogue River	Moderate	Low	Core		
Interior Klamath		Moderate		Non-core 1		
	Upper Klamath River	High	Low	Core		
	Shasta River	High	Low	Core		
	Scott River	Moderate	Low	Core		
		High		Non-core 1		
Interior Trinity	Lower Trinity River	High	Low	Core		
	South Fork Trinity River	High	Moderate	Non-core 1		
	Upper Trinity River	Moderate	Low	Core		
Interior Eel		High		Core		
		High		Core		
		High		Non-core 2		
		High		Non-core 2		
		Moderate		Core		
	High		Non-core 2			



# How are things looking?

NMFS assesses the status and effects of actions on listed species using 4 criteria:

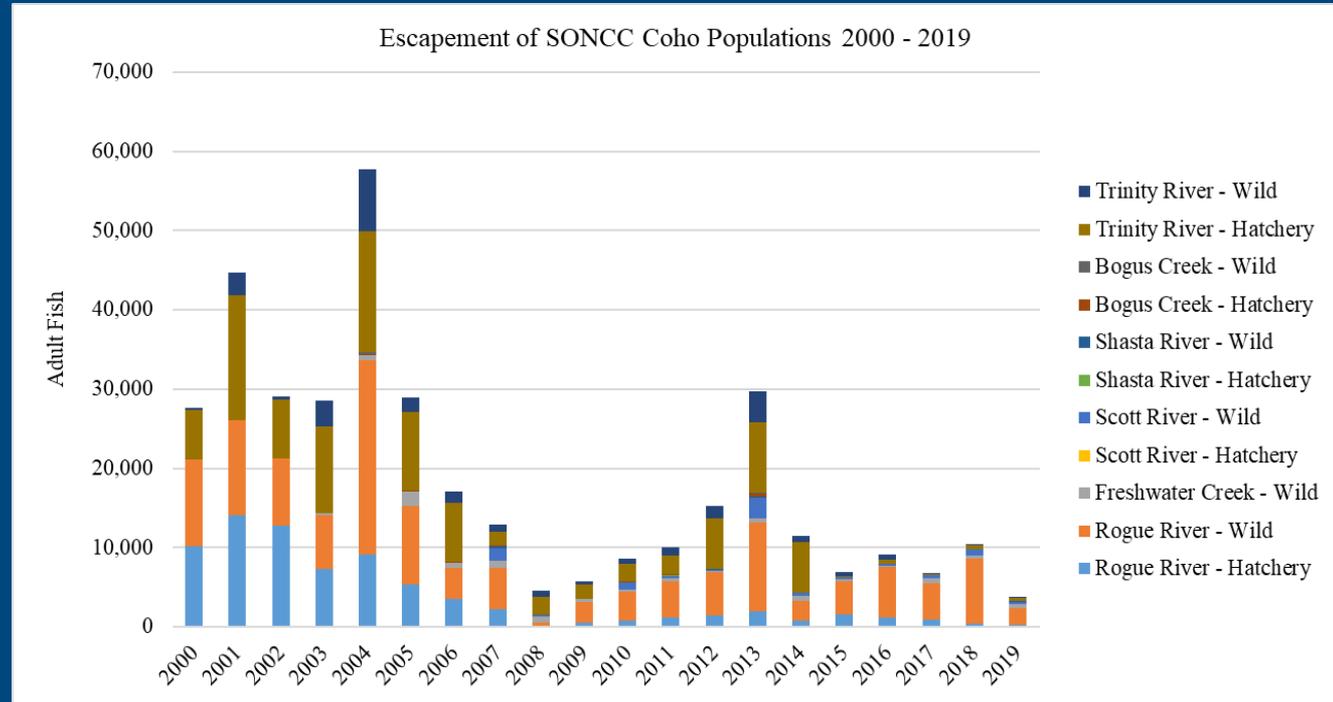
1. Abundance (how many fish are there and what's the trend?)
2. Productivity (how many juveniles are being produced in the habitat available?)
3. Spatial structure (how many populations have fish in them, and how many rivers currently have habitat access? Can fish get from one area to another or find refuge?)
4. Diversity (how many different life histories does an ESU have and their status? How reliant is it on supplementation from hatcheries? Are there strong populations across the ESU?)
5. Additional context like data uncertainty, environmental conditions, climate change (How reliable is the information on status for population and ESU? How is it likely to change?)



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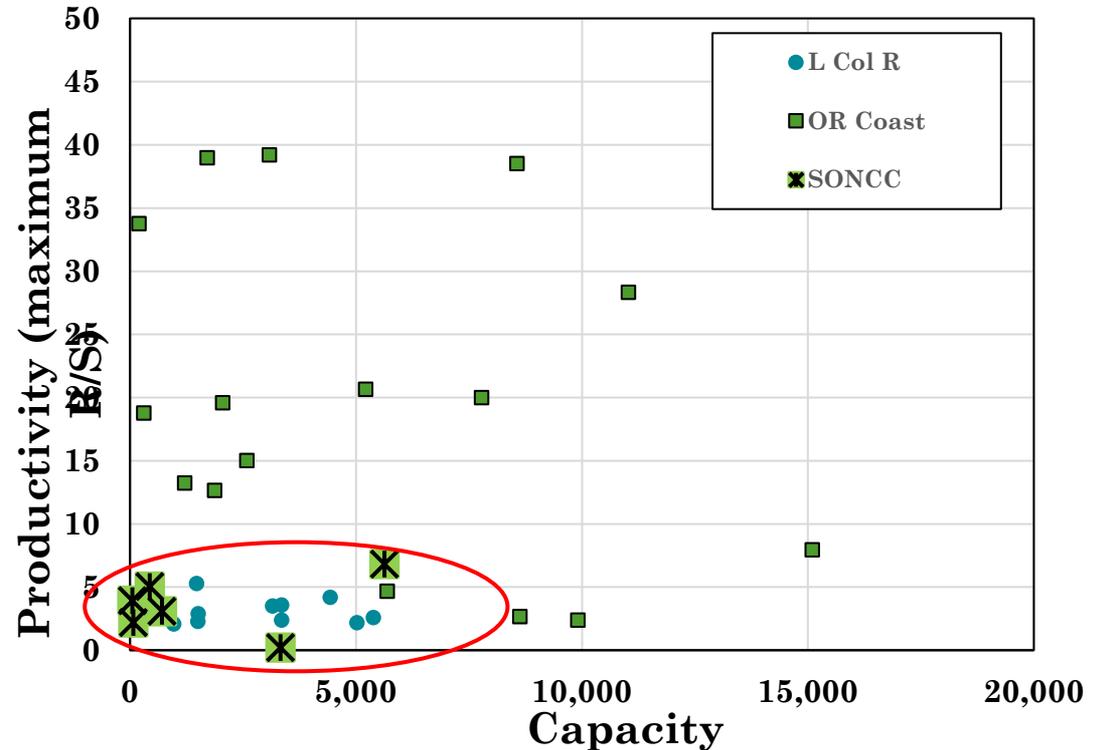
# How are things looking? (cont.)

- Abundance data back to 2000 is available for some populations, with more available for several other populations starting in 2007.
- Abundance has declined for the ESU. Some related to decreases in hatchery production.
- Wild population escapement for all populations but Rogue has averaged <500 since 2007.



# SONCC Coho Compared to Other Listed Coho ESUs

- Given the limited data on the SONCC ESU, the Workgroup compared SONCC productivity with other ESA-listed coho salmon.
- Compared to Lower Columbia or Oregon Coast Coho,
  - SONCC productivity lower than OCN but similar to LCN coho
  - Capacity is lower than both OCN and LCN coho
- Expect SONCC coho to sustain lower harvest rates than these other ESUs



# Status is not good

The current status information indicates:

- Abundance ↓
- Productivity: **poor**
- Spatial distribution & diversity: **largely unknown** (data availability is sparse across the 40 populations for this ESU)
- Environmental outlook is also important (**negative**)
- Populations at high risk across ESU

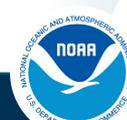
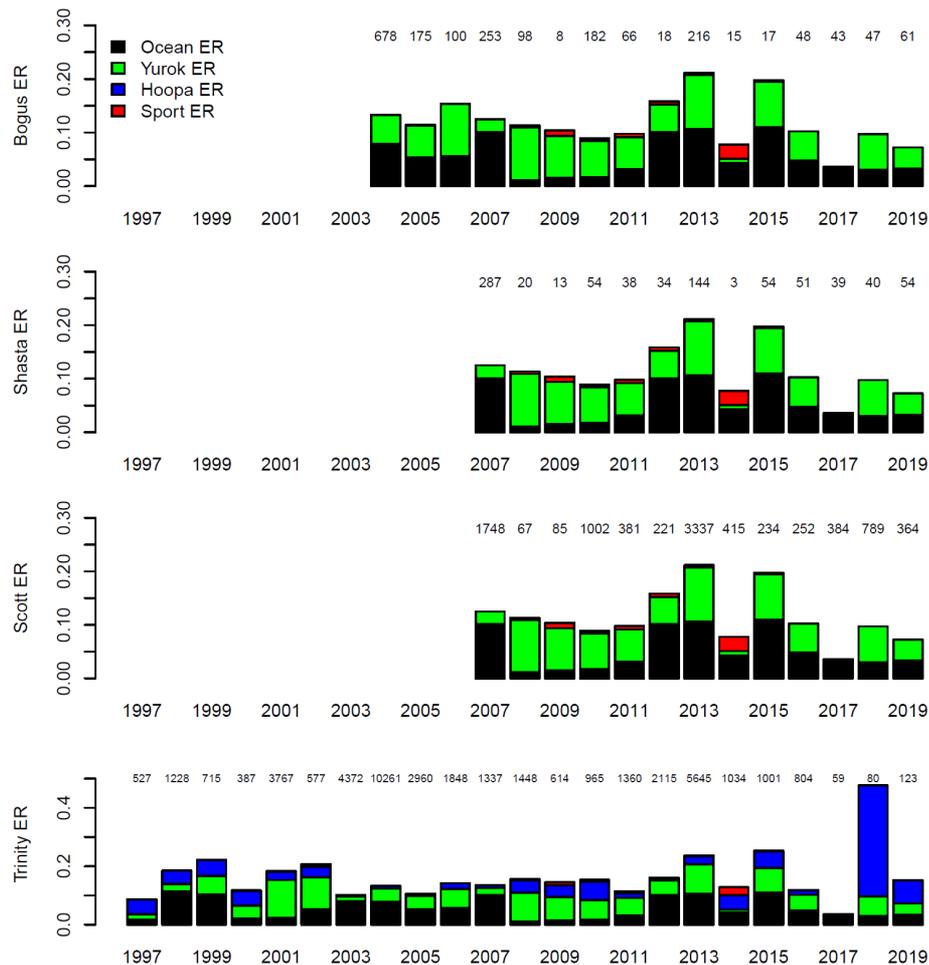


*Action should not further increase risk to the ESU*



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# Klamath Basin Exploitation Rates



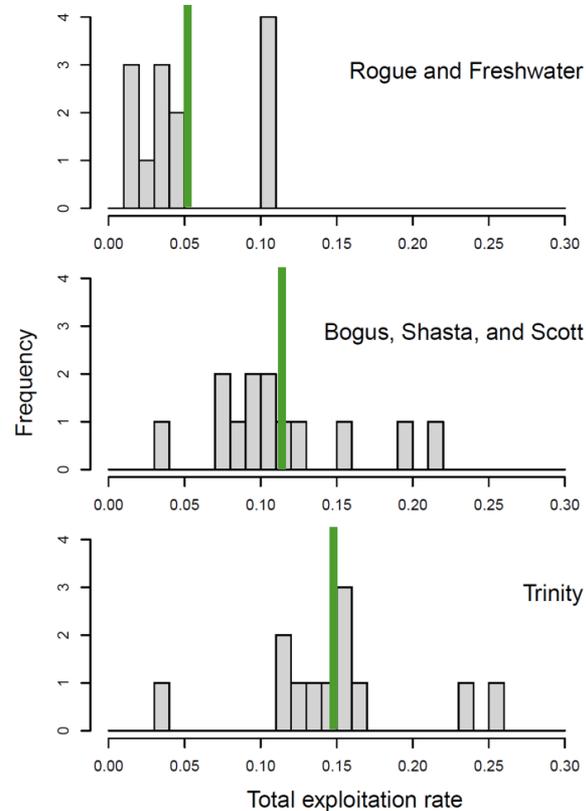
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# Control rules representing status quo

Rogue/FW Creek: CR 2 (7% ER)

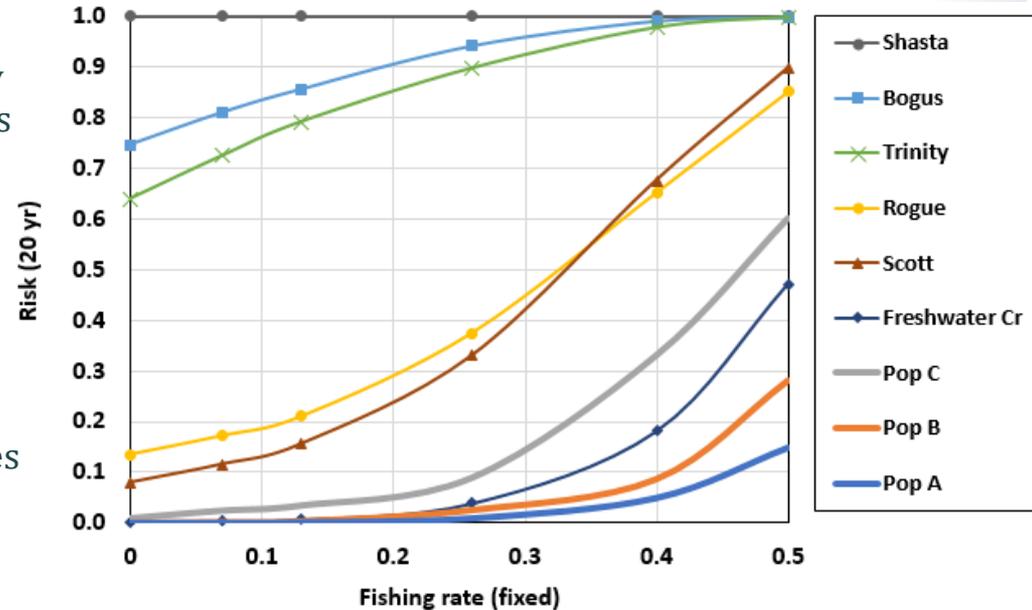
Bogus/Shasta/Scott: CR 3 (13% ER)

Trinity: CR 5 (15% ER)



# What is the effect of fisheries on risk?

- The Workgroup's RA utilizes a population viability analysis that incorporates the recovery plan critical risk thresholds (CRT) and evaluates the probability of not achieving these levels across different fixed fishing rates.
- The Council's Scientific and Statistical Committee endorsed the theoretical approach, but noted the lack of data for informing management decisions involving SONCC Coho and the considerable uncertainty this introduces into the risk assessment.
- The Workgroup's RA provides the risk results contrasted against a ZERO fishing scenario, which is useful for comparing risks to individual population units across control rules, i.e., effects on risk of fishing.

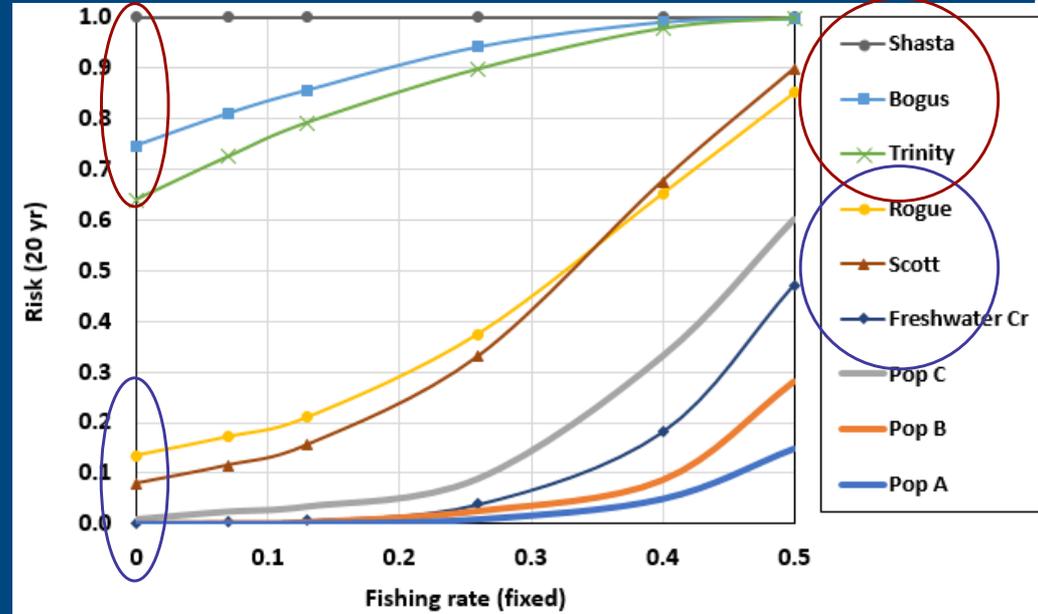


# How do populations compare?

Under a no fishing scenario, 3 populations are already at high risk and are less sensitive to changes in total ERs.

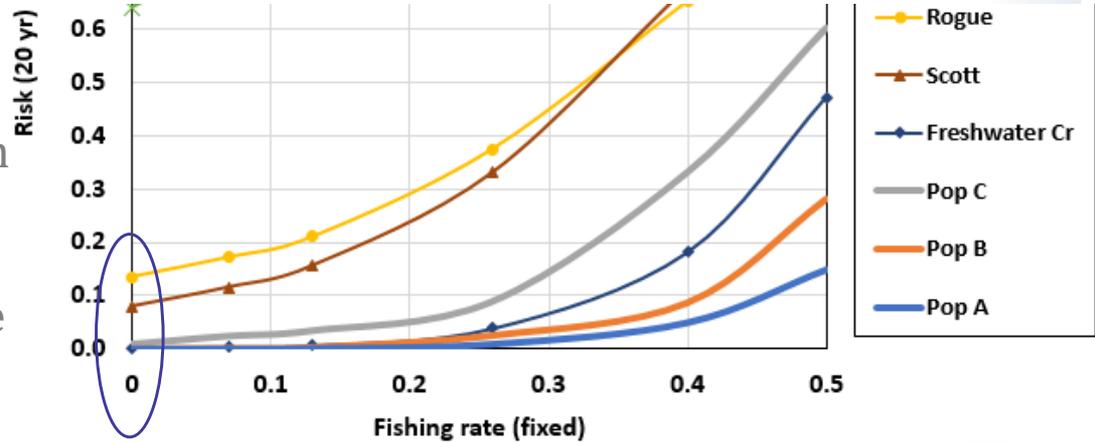
The other 3 populations start at much lower levels of risk under a no fishing scenario, and therefore provide a better vantage for evaluating harvest effects.

NMFS evaluates risk compared with no fishing, i.e., with and without the action.



# How do populations compare (cont)?

By focusing on the populations that are more sensitive to  $\Delta$  in ER's we can see where a double digit risk differential occurs to several populations when compared with the no fishing scenario

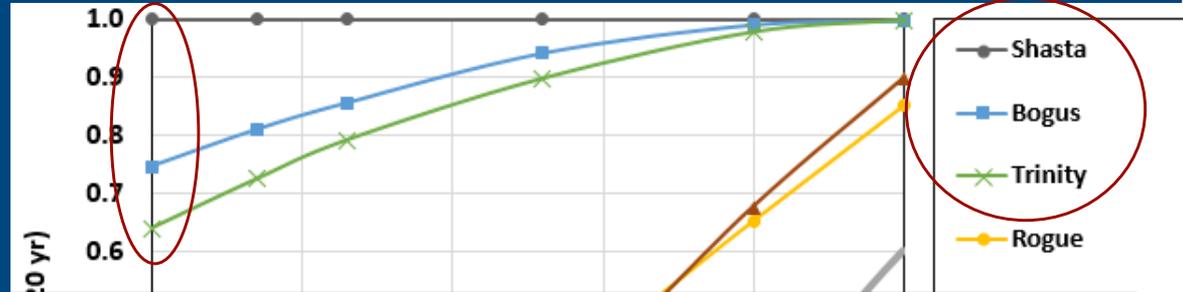


Pops	Risk to the population falling below the threshold										$\Delta$ in risk from a 0% ER scenario									
	ER: 0%	7%	13%	14%	15%	16%	17%	18%	19%	20%	7%	13%	14%	15%	16%	17%	18%	19%	20%	
Rogue R.	14%	17%	21%	22%	23%	24%	25%	26%	27%	29%	3.7%	7.5%	8.7%	9.9%	10.4%	11.7%	12.6%	13.7%	15.0%	
Scott R.	8%	12%	16%	16%	17%	19%	19%	21%	22%	22%	3.6%	7.6%	8.5%	9.1%	10.7%	11.5%	12.7%	13.7%	14.5%	
Freshwater Crk.	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	0.3%	0.6%	0.8%	1.1%	1.2%	1.2%	1.3%	1.3%	1.3%	



# How to populations units compare across ERs?

For the 3 populations already at high risk the Workgroup's RA provides us with information on where ERs start to reduce a population's ability to exceed their Critical Risk Threshold (CRT).



Pops	CRT	Escapement for the population at each total ER									
		ER: 0%	7%	13%	14%	15%	16%	17%	18%	19%	20%
Shasta	<b>144</b>	10	-	-	-	-	-	-	-	-	-
Bogus	<b>50</b>	70	70	60	60	60	60	60	50	50	50
Trinity	<b>719</b>	1,190	1,060	860	860	860	790	790	790	730	730

# Mitigating Circumstances for Higher Risk?

- Role of the population in recovery of the ESU consistent with higher risk?
- Increasing trends in wild abundance? Increasing productivity?
- Abundance above habitat capacity and robust to demographic risk?
- Range of risks across the ESU?
- Incremental increases in risk on populations already at high risk with no fishing are very low?
- Comprehensive monitoring in place to detect change?

**Generally not applicable based on information reviewed**



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# Take Home

NMFS is concerned about current status of the SONCC Coho ESU.

Overall, the status of the SONCC Coho ESU has not improved, but degraded.

Data and coverage are very limited across the ESU but the weight of information suggests HCRs in the range of 13-17% warrant further discussion.

A *cautionary* approach for this ESU is likely warranted given its contemporary status and the limited data available.



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