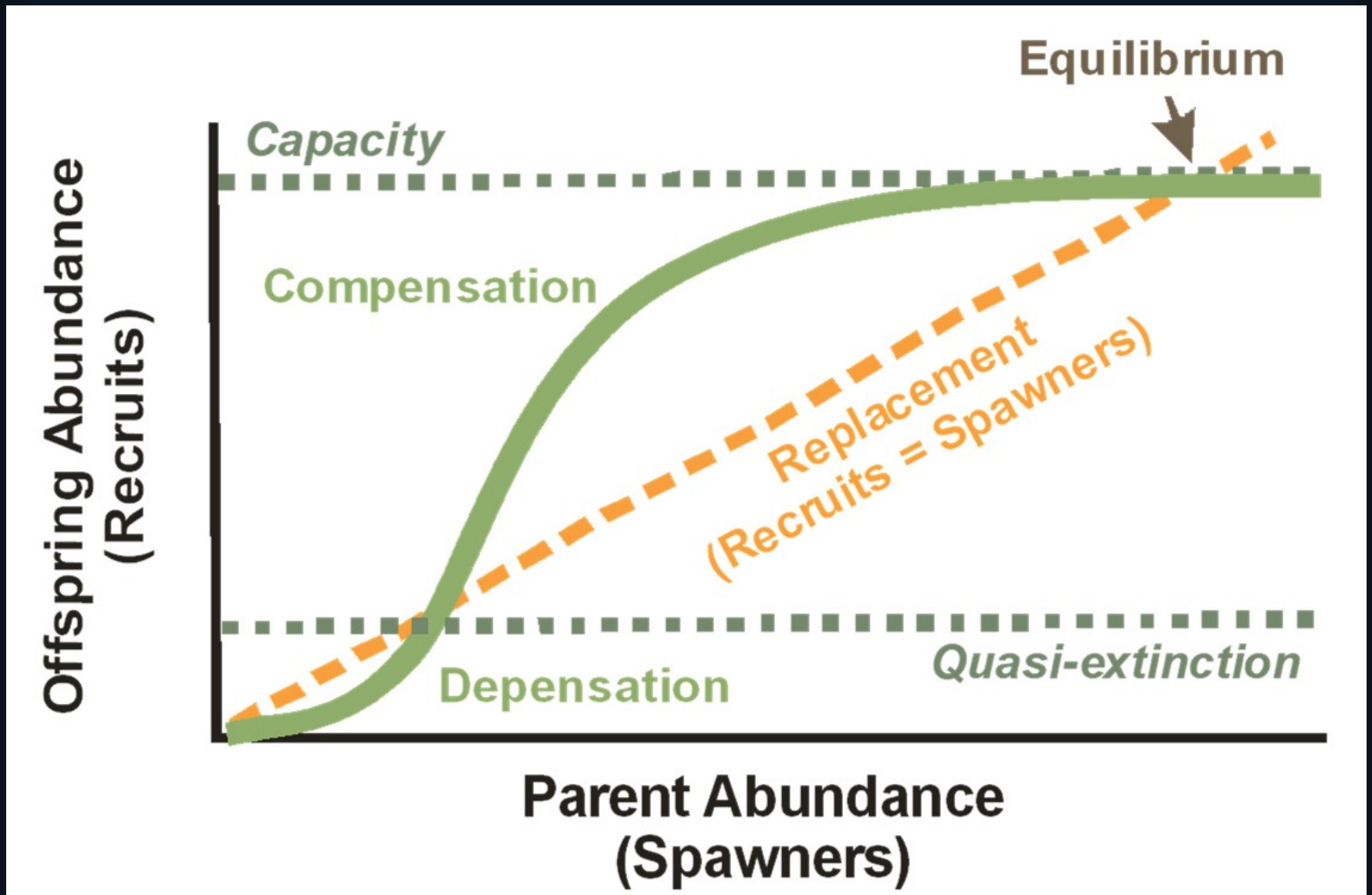
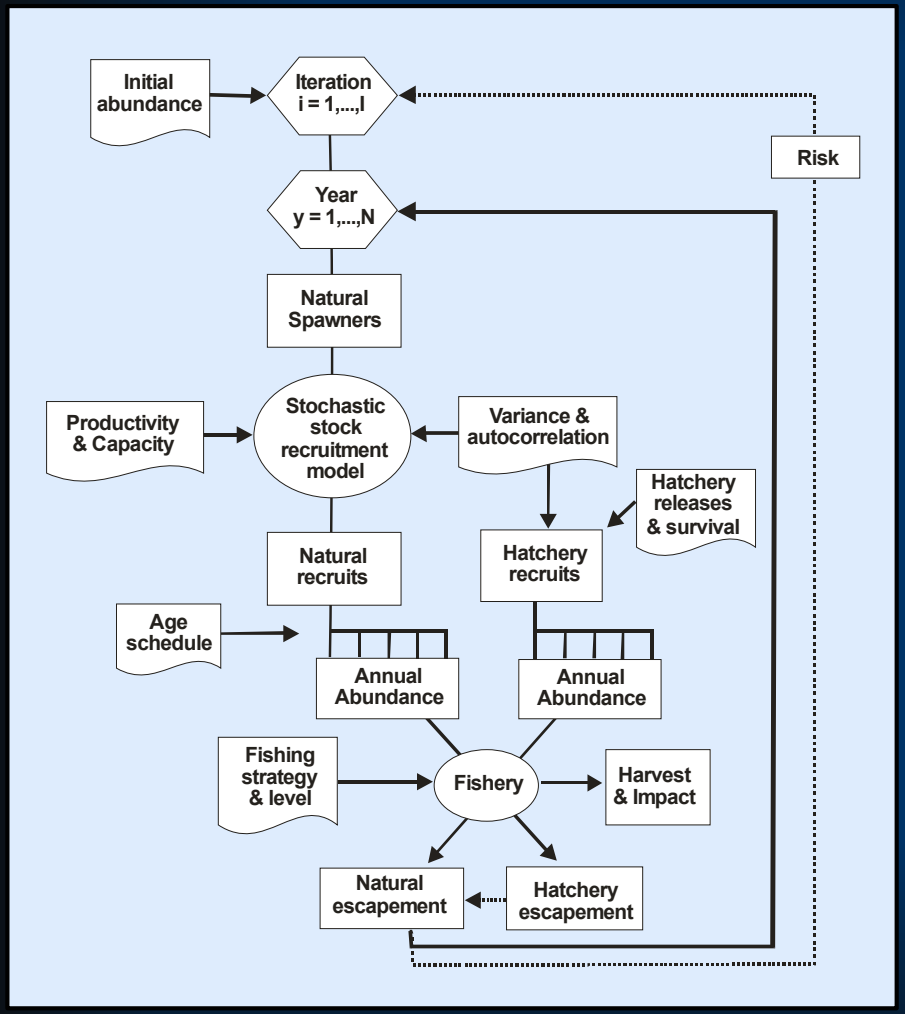
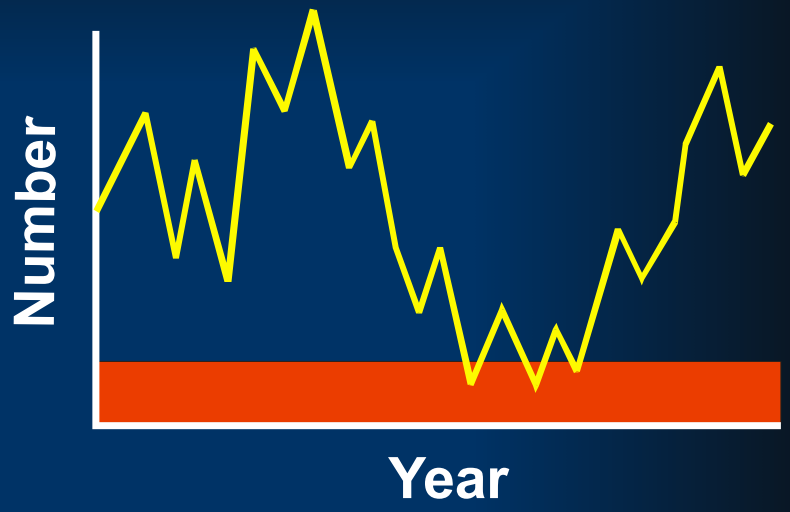
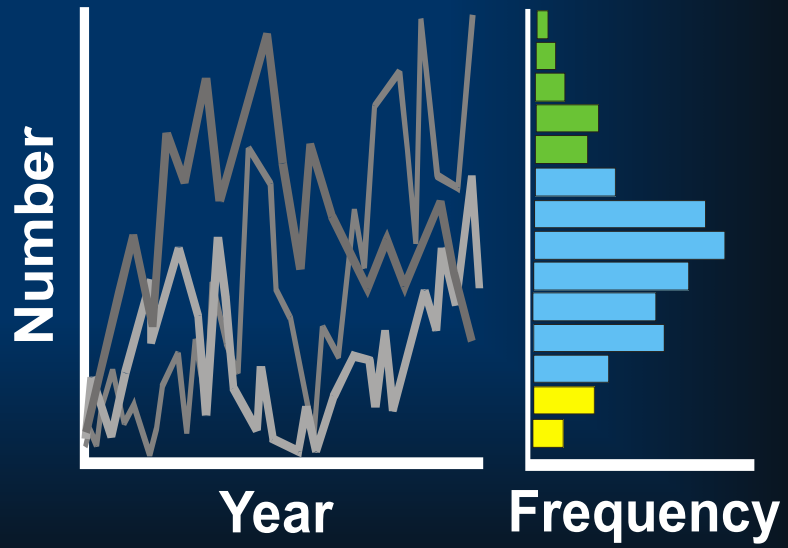

Equilibrium
Capacity
Compensation
Replacement
(Recruits = Spawners)
Quasi-extinction
Depensation
Offspring Abundance
(Recruits)
Parent Abundance
(Spawners)

Population Viability Analysis







Model Parameterization*

Natural production

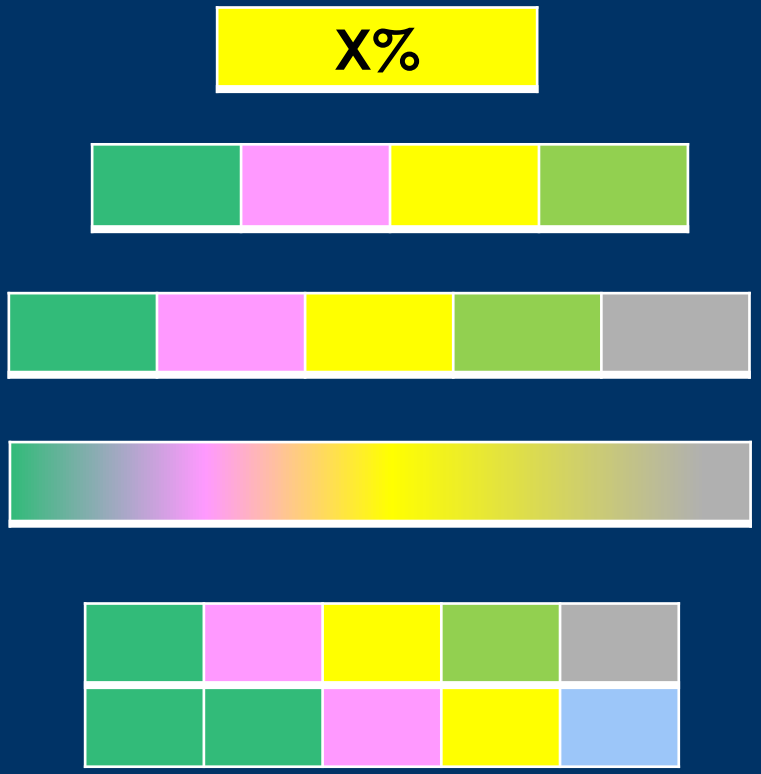
- Population-specific (ideally)
- Adult abundance
- Age composition
- Stock-recruitment parameters
- S-R variance
- Viability threshold

Hatchery production

- Releases
- Adult abundance
- Hatchery-Natural correlation
- Forecast error

** Model configuration ultimately depends on data availability*

HCR Matrices



Performance Measures*

- Spawning escapement
- Probability of low escapement (conservation risk)
- Harvest of SONCC coho by fishery
- Harvest of other salmon in SONCC coho-constrained fisheries
- Frequency of harvest or rate tiers
- Hatchery return

* examples

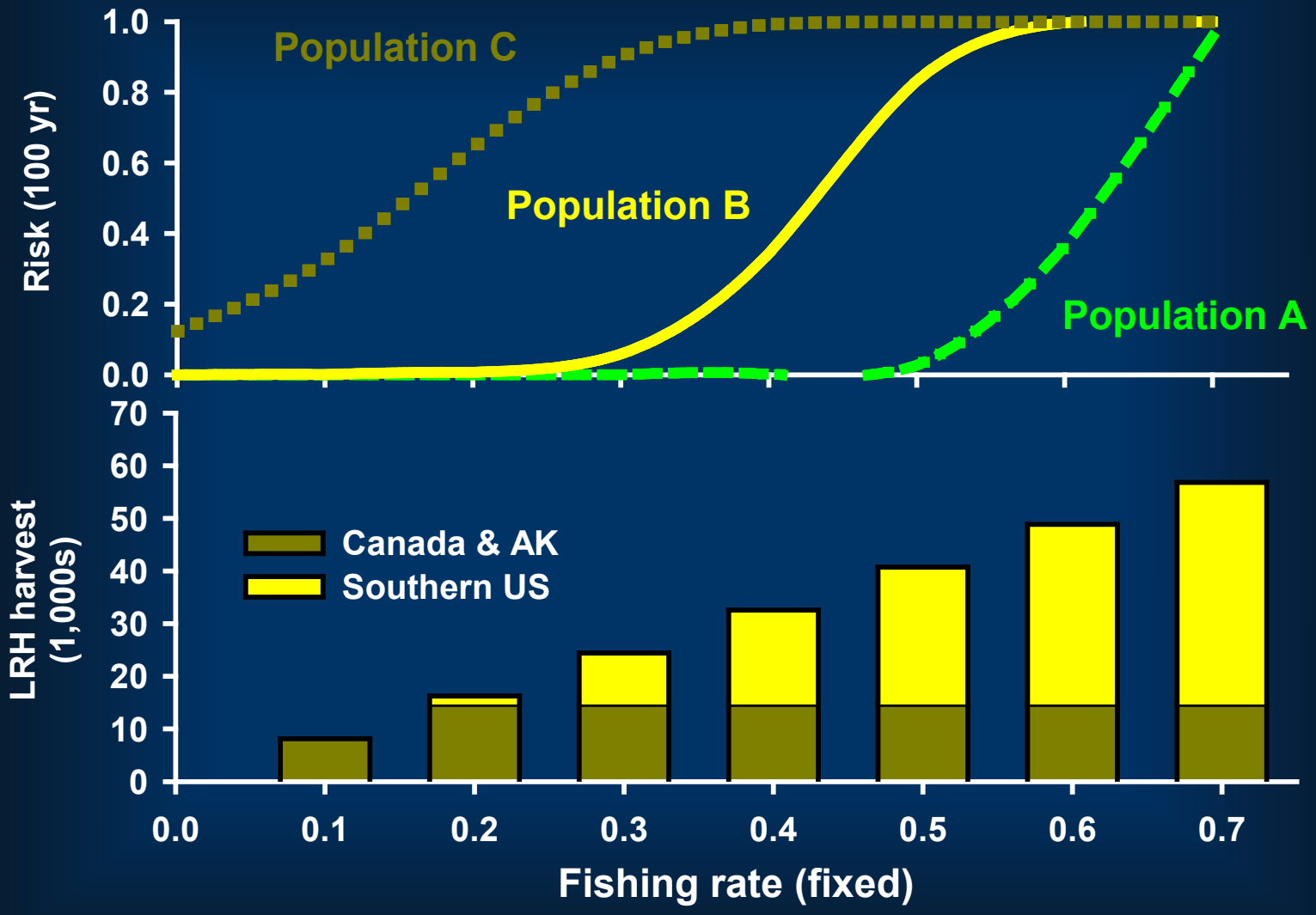
Tier frequency

Rate	Frequency
8%	10%
15%	60%
20%	20%
22.5%	10%

Fishery opportunity

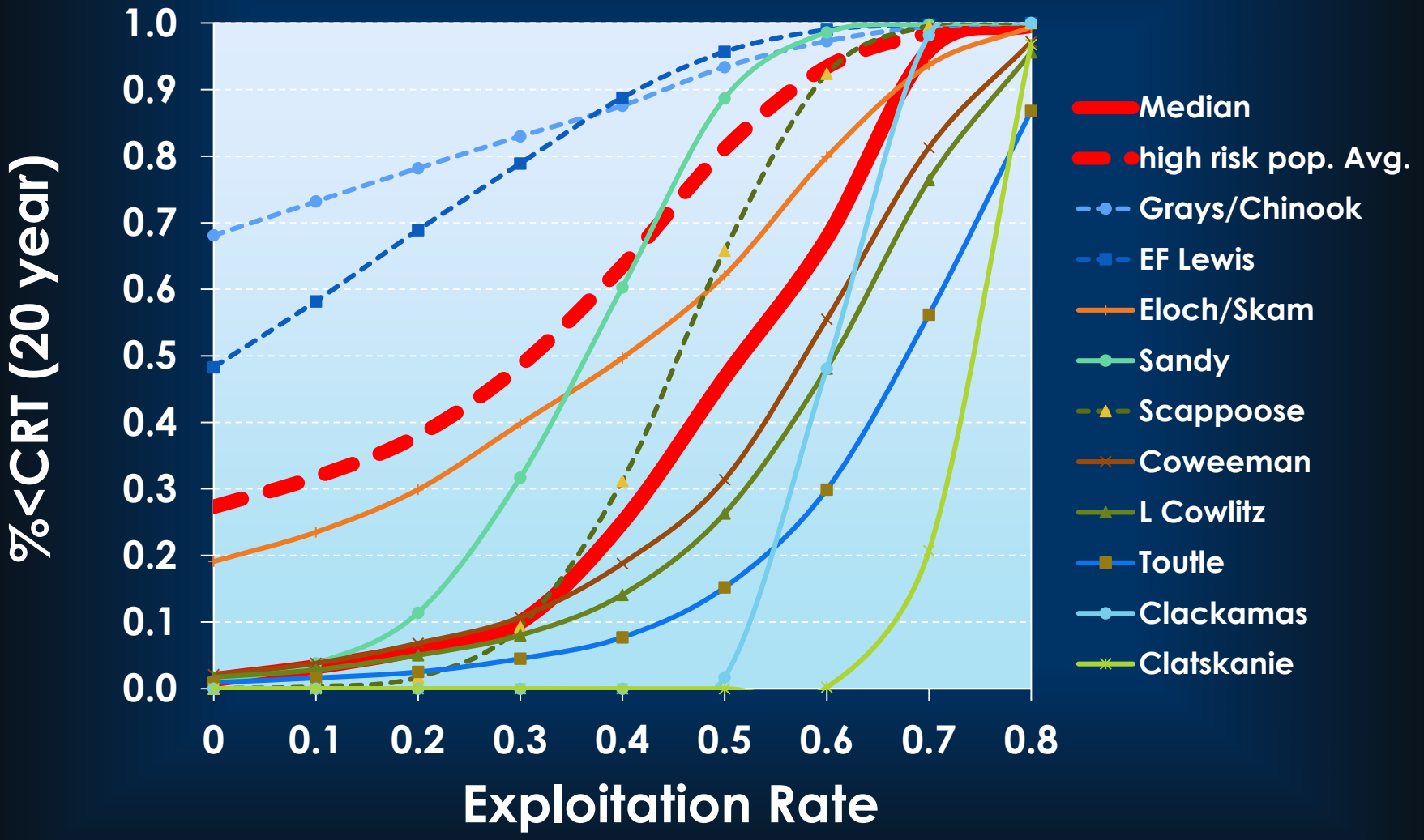
Exploitation Rate*	Fishery
10%	No coho retention
10-20%	Mark-selective
20-25%	Coho target
30%	Maximum usable

Risk profiles



LCR Tule Example

L Col R Coho


%<CRT (20 year)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
Exploitation Rate
Median
high risk pop. Avg.
Grays/Chinook
EF Lewis
Eloch/Skam
Sandy
Scappoose
Coweeman
L Cowlitz
Toutle
Clackamas
Clatskanie

L Col R Coho Example

Model	Structure	Exploitation Rates (%)[a]	Frequencies (%)	Seeding categories	Effective ER[b]	Risk
actual	Current (Sandy/Clack)	8/15/20/22.5	10/60/20/10	--	16.0%	--
1	Current (all pops)	8/11/15/20/25/30/38+	24/0/48/20/0/8/1	0/0.10/0.20/0.50/0.75	15.7%	0.346
2	1 x 4	10/15/20/25	10/25/60/5	--	18.0%	0.364
3	1 x 5	10/15/20/25/30	10/35/45/5/5	--	18.0%	0.364
4	2 x 5	10/15/20/25/30	= 10/35/45/5/5	--	18.0%	0.364
		10/10/15/20/25	0/100 =	0/.3		
8	1 x 3 (new)[d]	10/19/22.5	15/60/25	--	18.5%	0.365