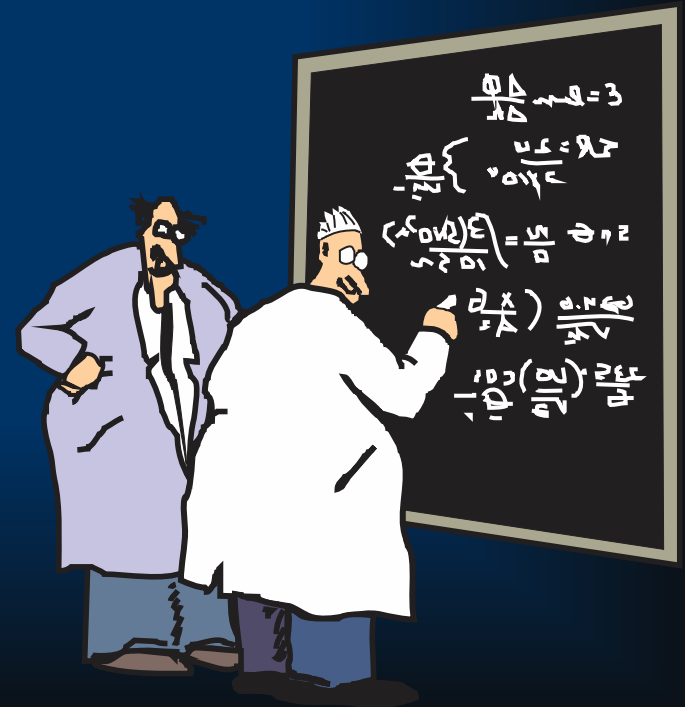


Risk Assessment Development

AD HOC SOUTHERN OREGON/NORTHERN
CALIFORNIA COAST COHO

WORKGROUP MEETING – AUGUST 6-7, 2020



Today's Topics

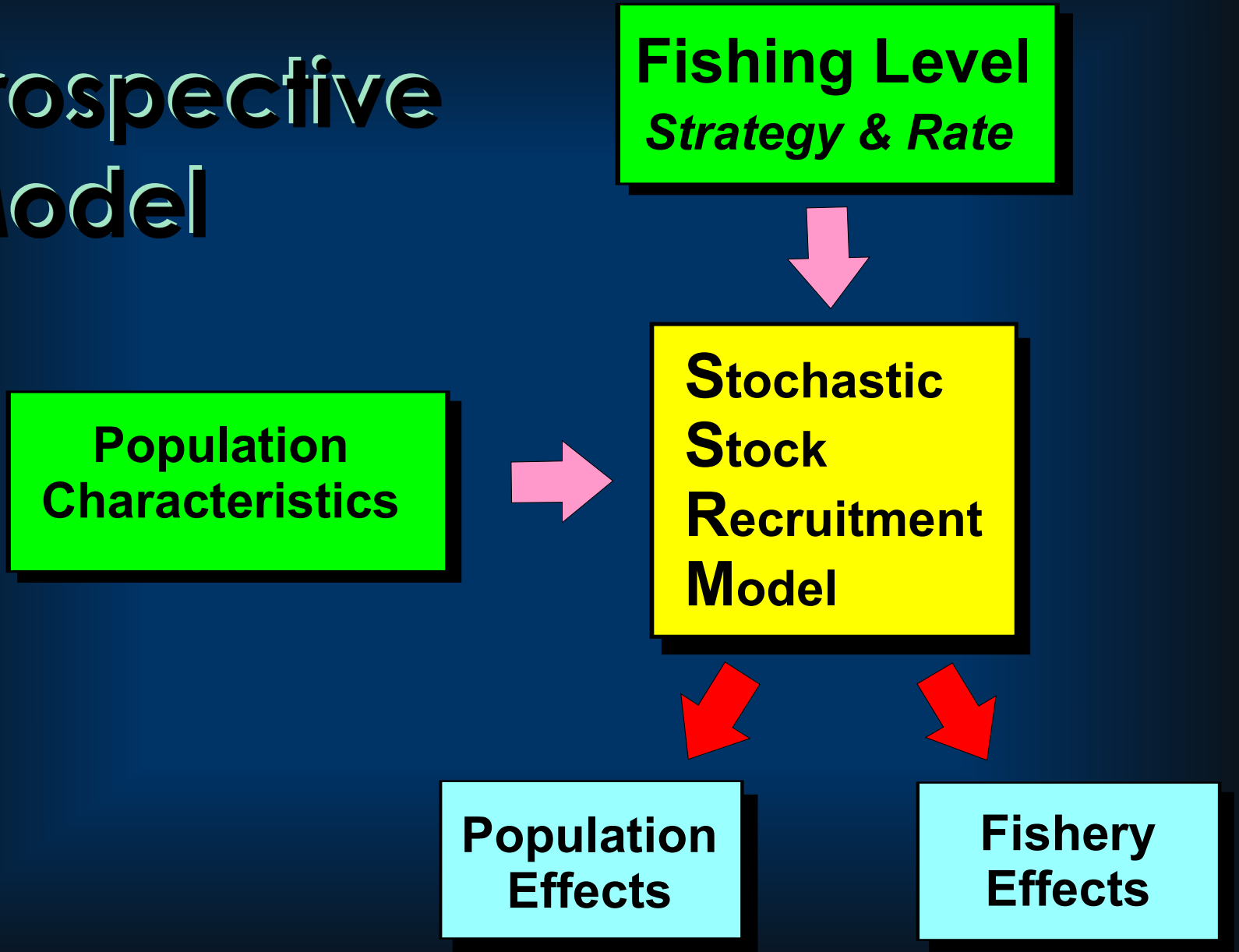
- ▶ **Methods used to evaluate alternative control rules**
- ▶ **Model parameterization**
- ▶ **Performance measures**

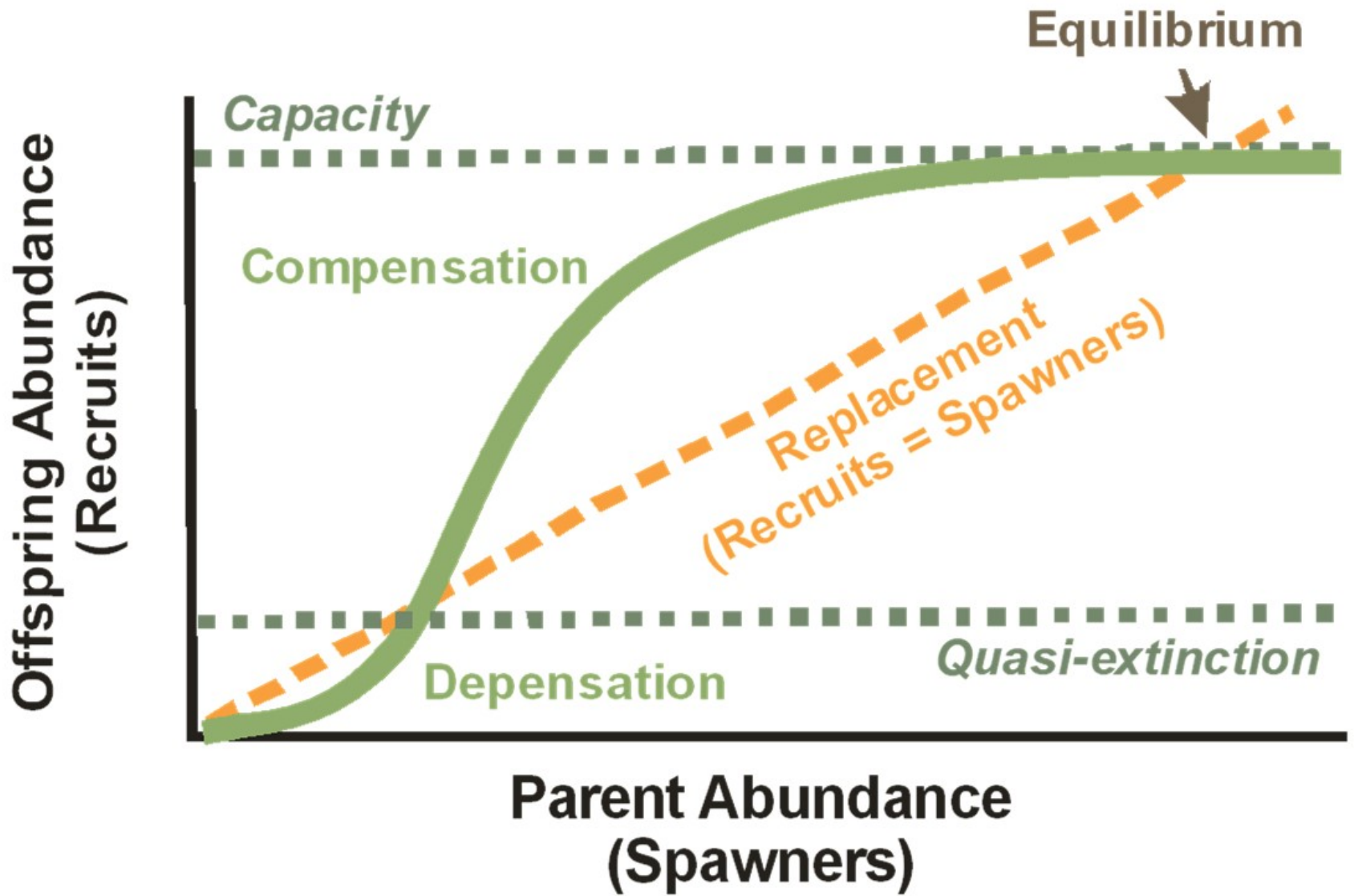
Analysis Methods

- ▶ How would fisheries be affected by alternative rules?
- ▶ How would natural populations be affected by alternative rules?
- ▶ Prospective vs. Retrospective

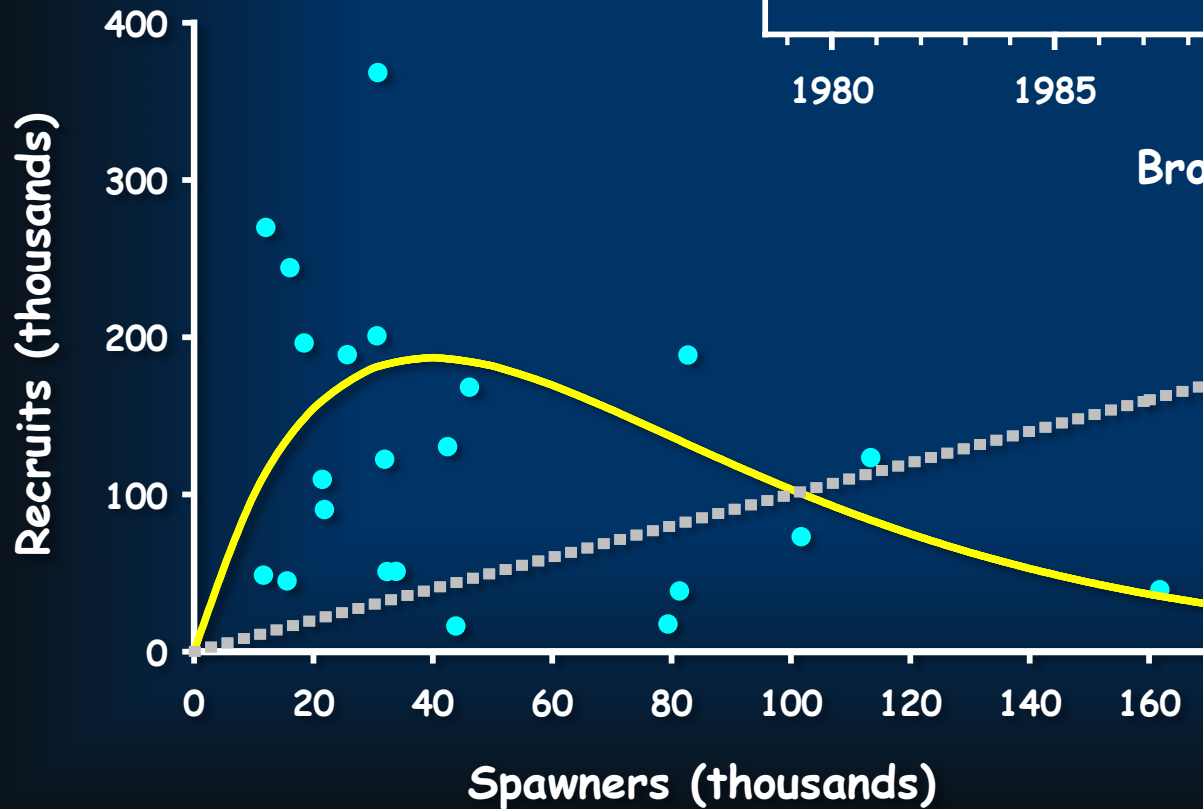
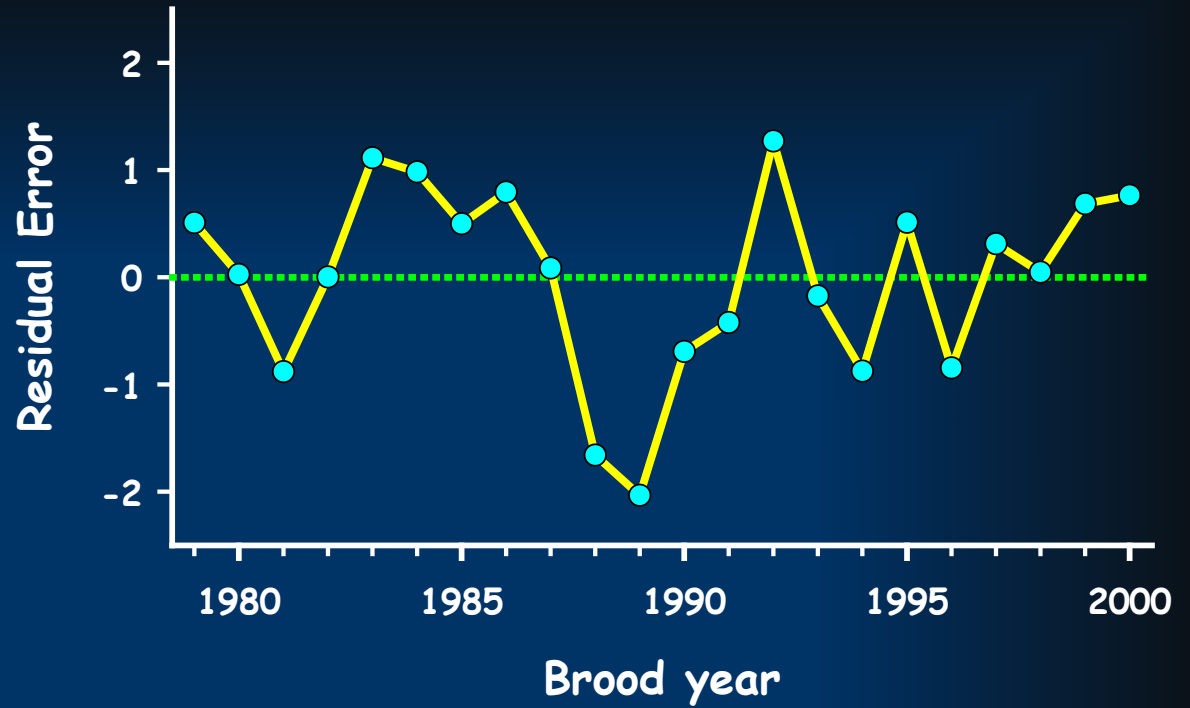


Prospective Model

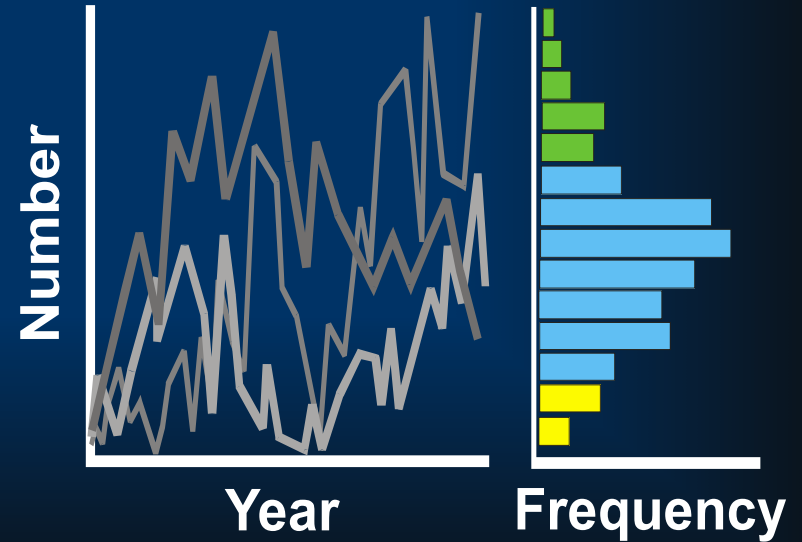
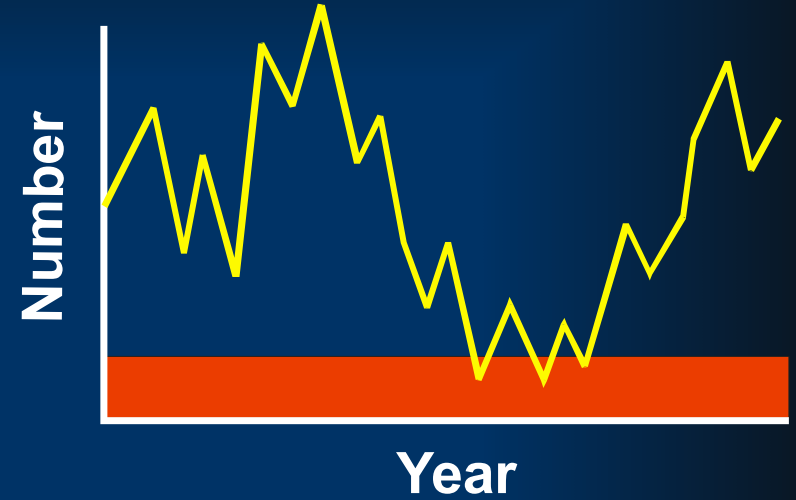
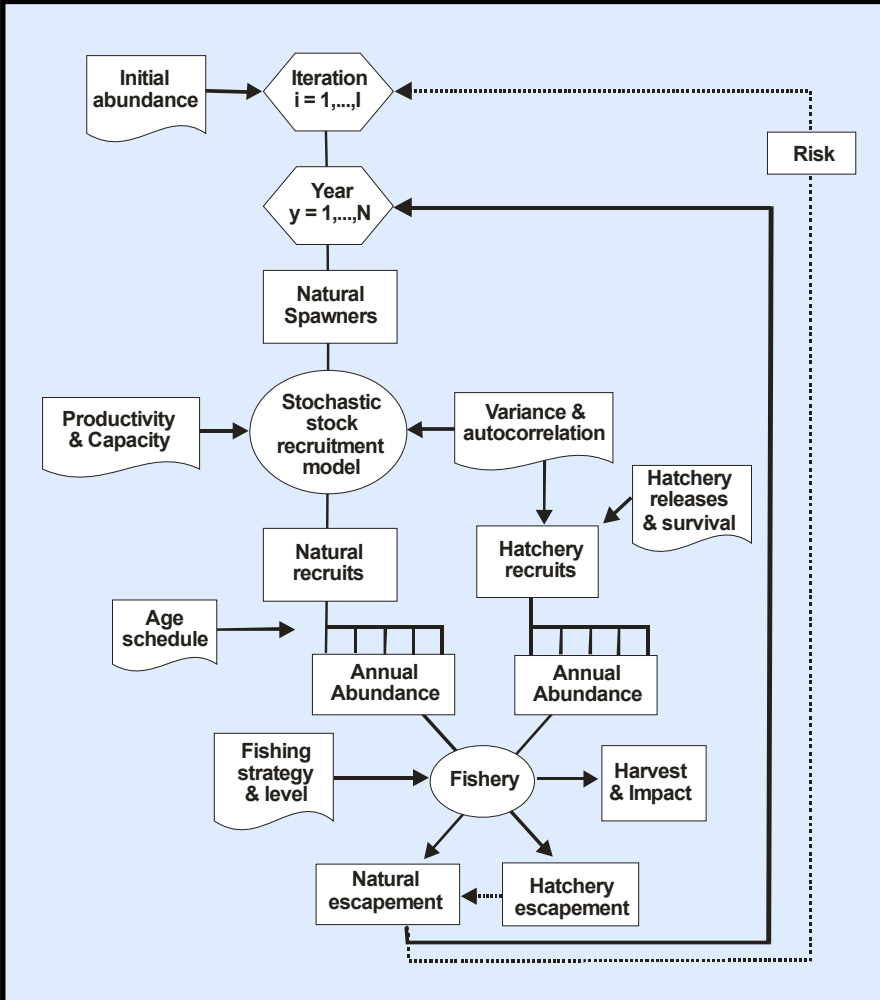




Klamath Fall Chinook



Population Viability Analysis



Model Parameterization*

Natural production

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

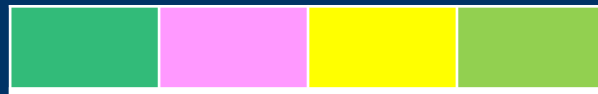
Hatchery production

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

* Model configuration ultimately depends on data availability

HCR Matrices

X%



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

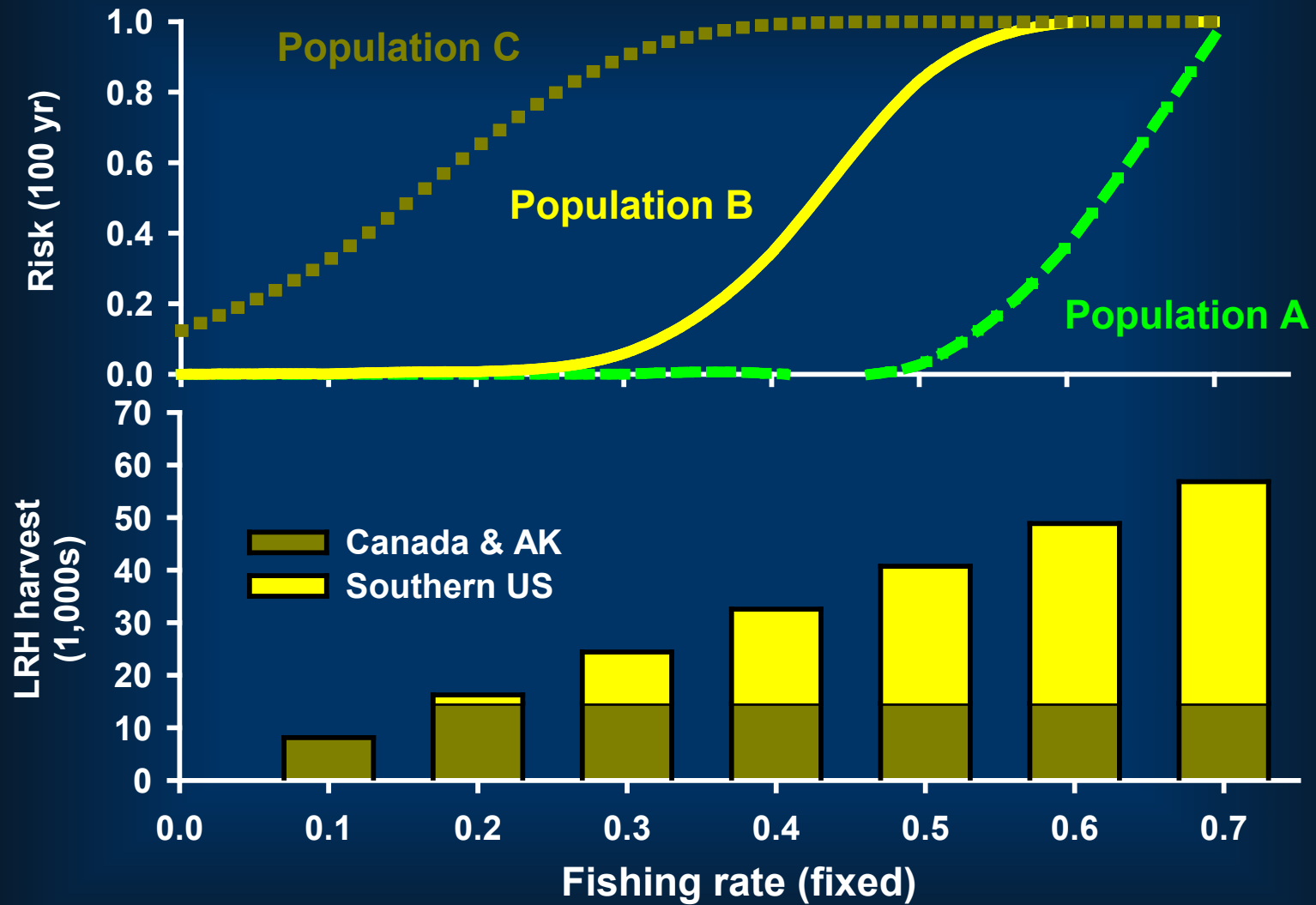
Tier frequency

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

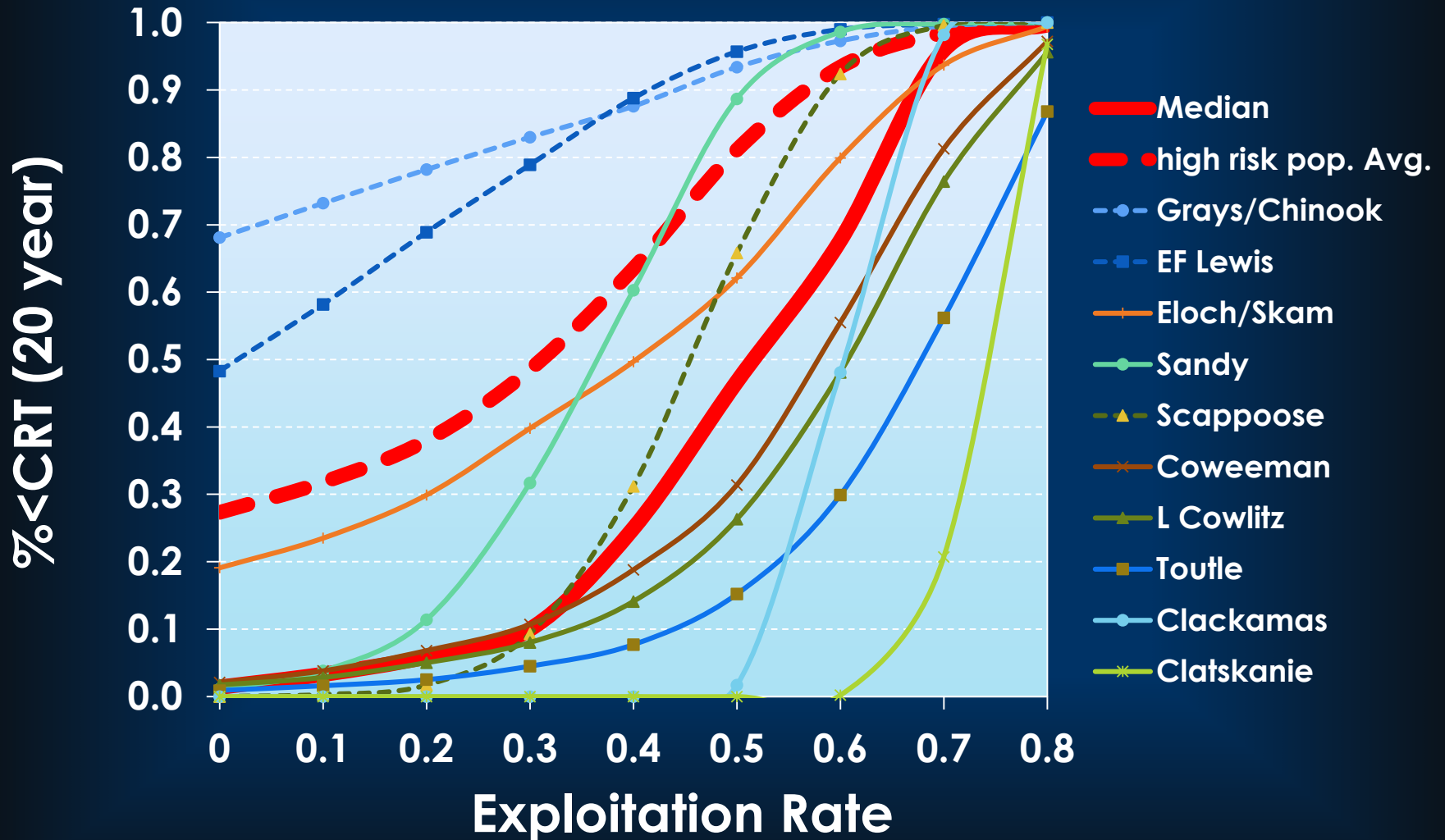
Fishery opportunity

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

Risk profiles



L Col R Coho



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 =	<u>0/.3</u>		
8	1 x 3 (new) ^d	10/19/22.5	15/60/25	--	18.5%	0.365