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DRAFT

Status of greenstriped rockfish along the outer coast of CA, OR, and WA

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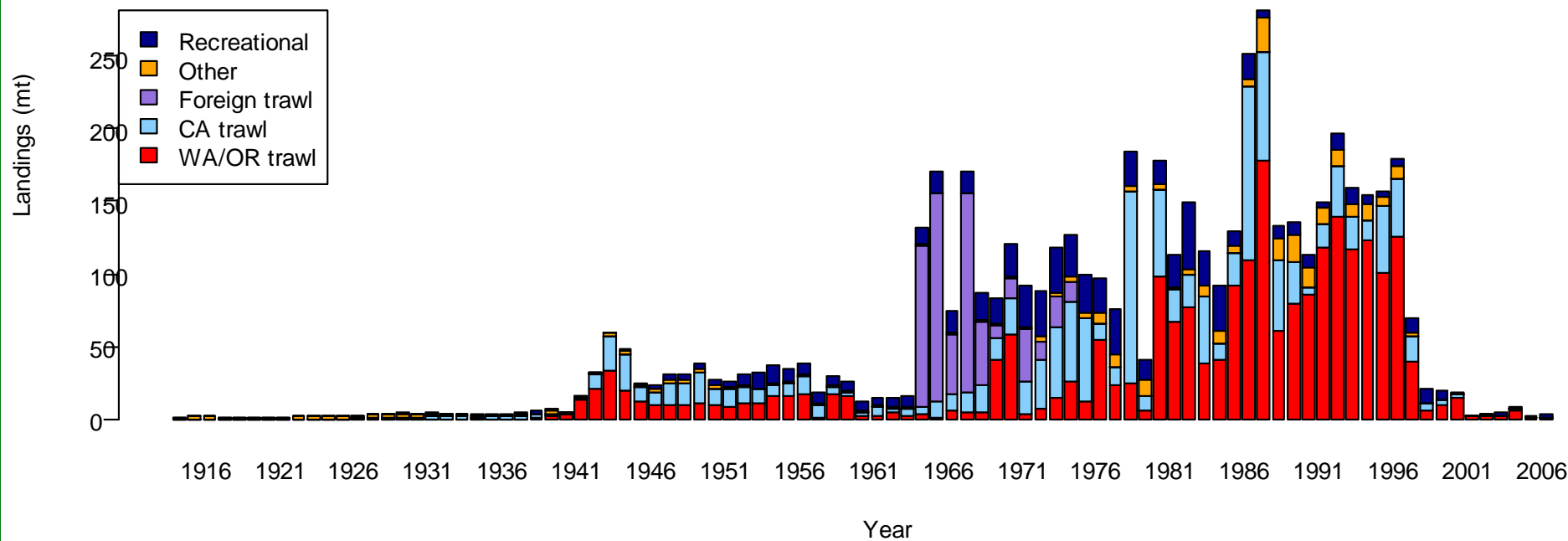
SSC Meeting
September 14, 2009

Introduction: biology

- *Sebastes elongatus*
- Small rockfish (<45 cm)
- Found with others or alone
- Prefer mud and sand bottoms, but are found in a wide range of habitats
- Maturing fish move to deeper water



Landings: All gears

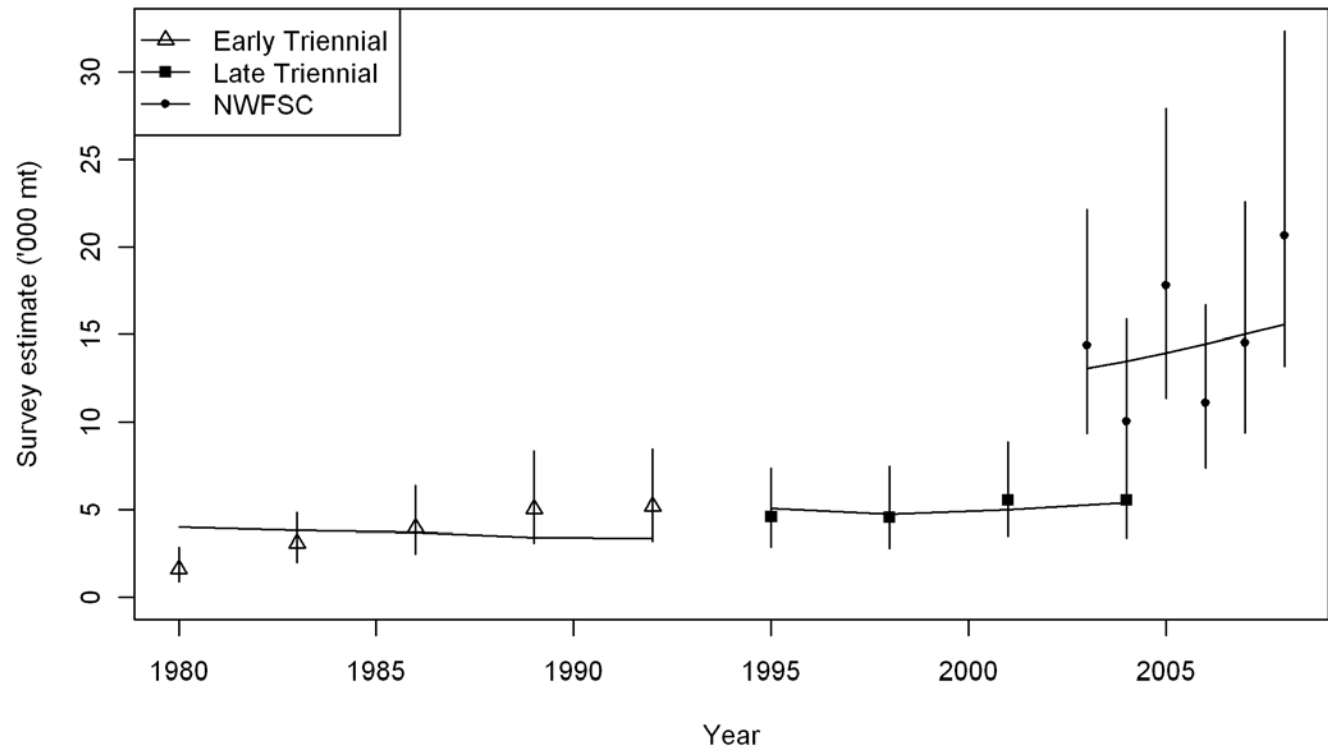


Model description

- First assessment for greenstriped rockfish on the West Coast
- 5 commercial fleets
 1. WA/OR trawl (discards)
 2. CA trawl (discards)
 3. Foreign trawl (no discards)
 4. Other-gear (non-trawl, discards)
 5. Recreational (discards included in catches)
- 3 survey series
 1. early Triennial
 2. late Triennial
 3. NWFSC

Fits to abundance indices

- Catchability (q)
 - early Triennial = 0.20
 - late Triennial = 0.32
 - NWFSC = 0.84

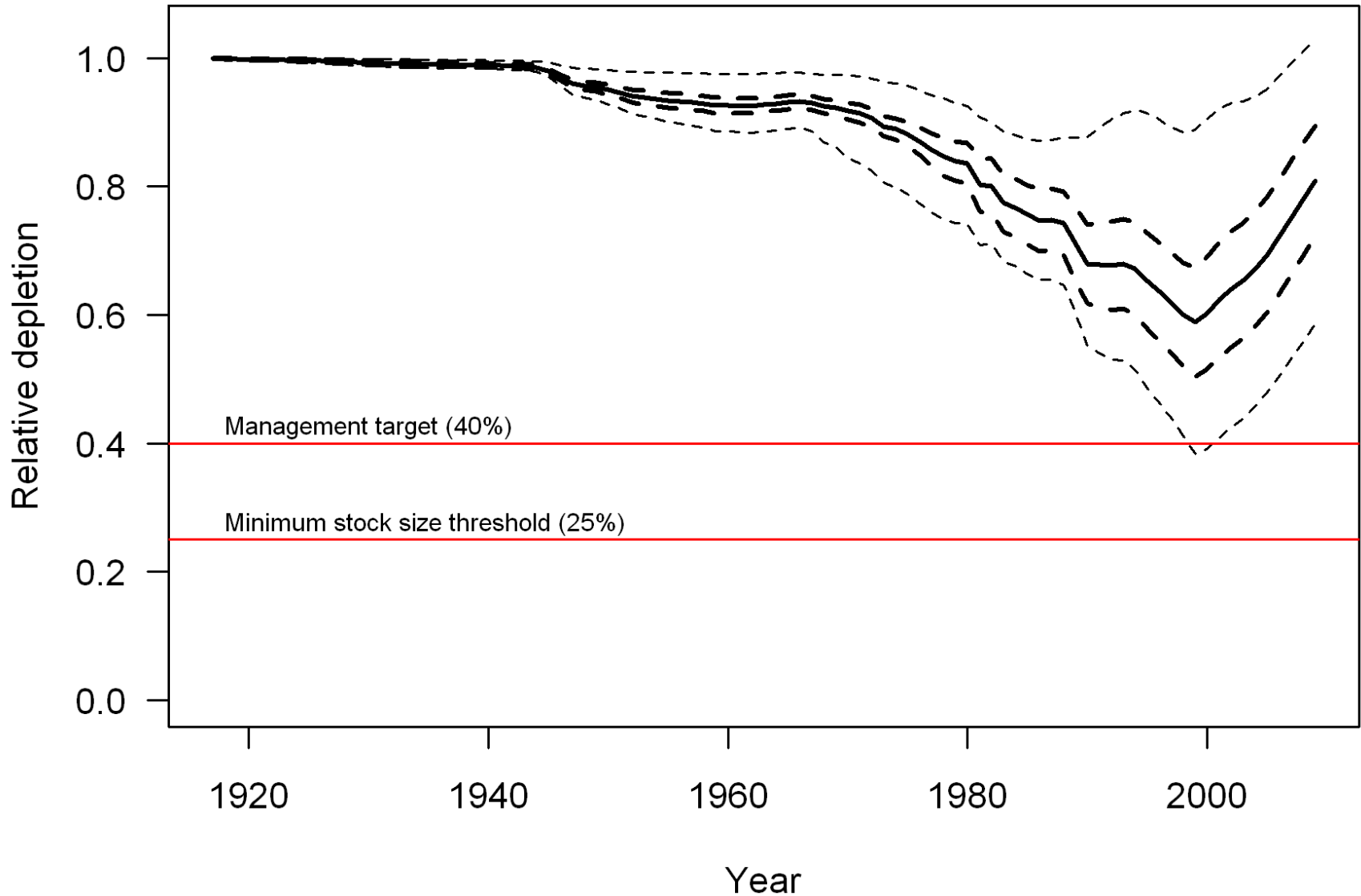


Axes of uncertainty

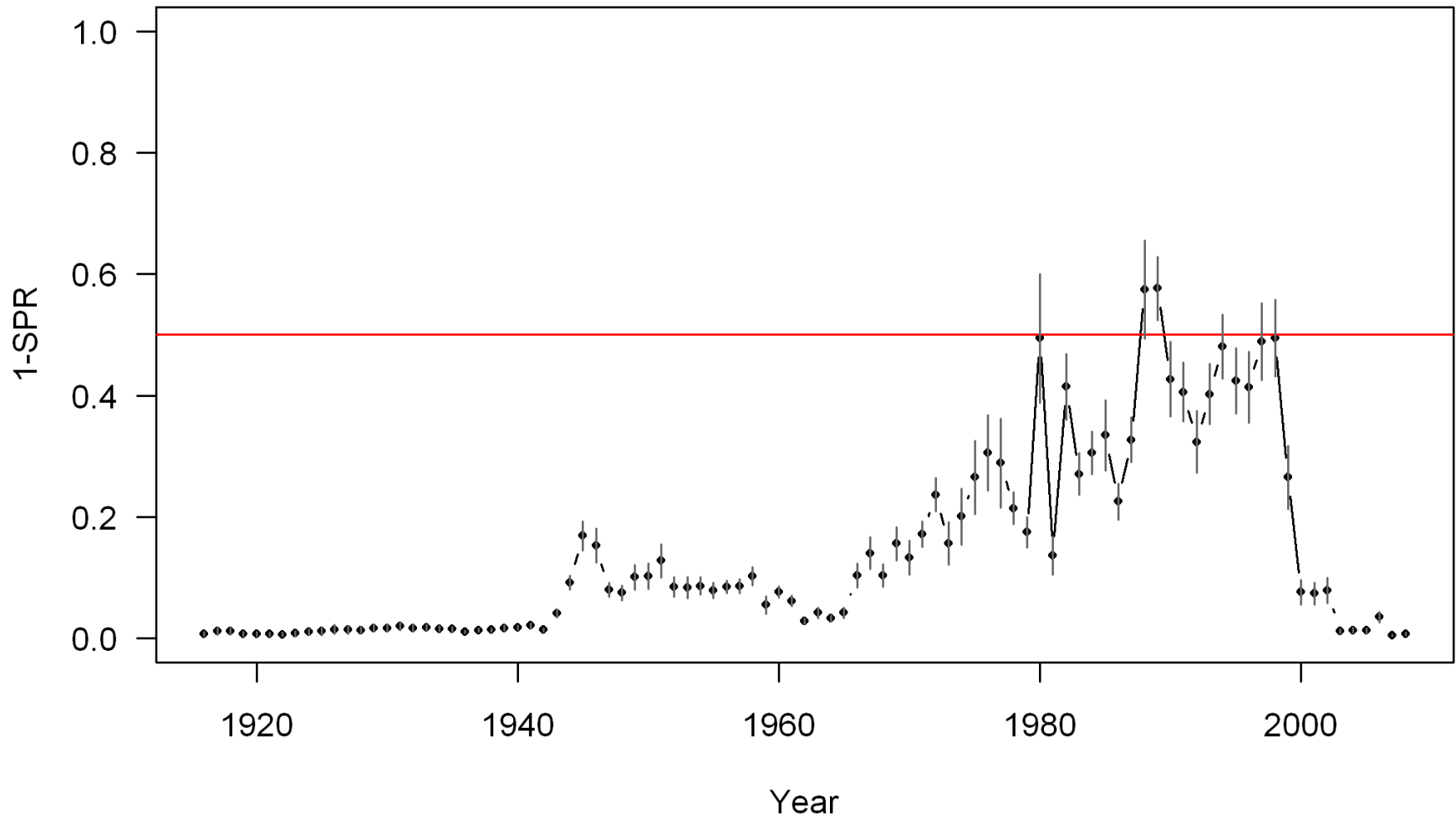
- Two axes of uncertainty
 1. Discard fraction
 - affects the absolute biomass
 2. Natural mortality
 - affects the level of depletion

		State of nature (natural mortality)		
		M=0.06	M=0.08	M=0.10
State of nature (fraction discarded)	Low fraction discarded			
	Base fraction discarded		Base Model	
	High fraction discarded			

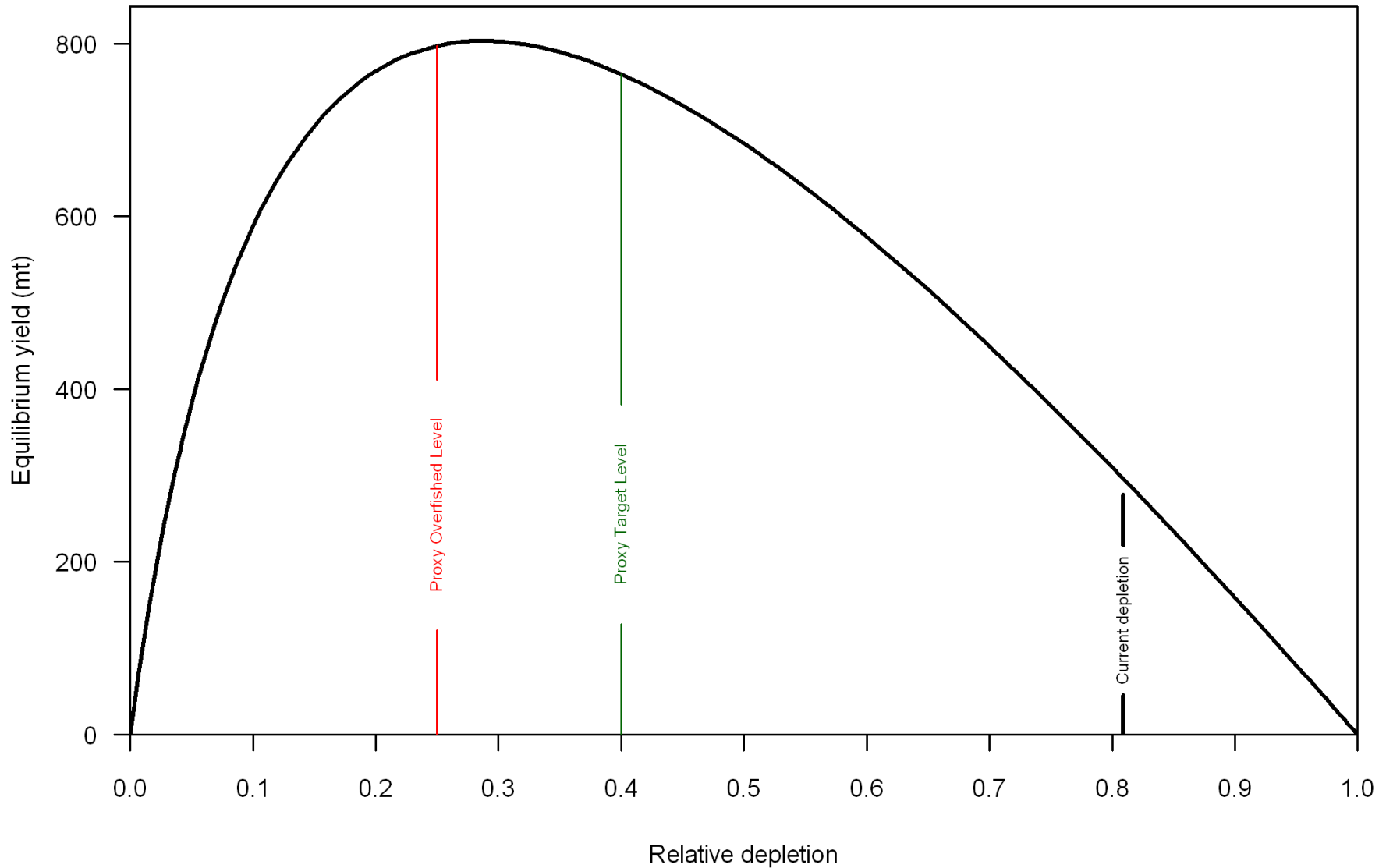
Predicted depletion



Spawning potential ratio



Equilibrium yield curve



Decision Table

			State of nature (natural mortality)						
			M=0.06		M=0.08		M=0.10		
			Depletion (%)	Spawning output (million)	Depletion (%)	Spawning output (million)	Depletion (%)	Spawning output (million)	
		Year	Landed catch (mt)						
State of nature (fraction discarded)	Low fraction discarded	2011	20	66.9	1,340	88.8	2,904	106.2	9,316
		2012	20	68.7	1,375	90.5	2,957	107.3	9,409
		↓	↓	↓	↓	↓	↓	↓	↓
		2019	20	76.5	1,533	95.3	3,114	107.4	9,418
		2020	20	77.3	1,548	95.5	3,121	107.0	9,384
	Base fraction discarded	2011	20	63.9	3,324	86.2	6,113	105.2	17,324
		2012	20	65.9	3,427	88.1	6,249	106.5	17,540
		↓	↓	↓	↓	↓	↓	↓	↓
		2019	20	74.7	3,886	94.1	6,675	107.3	17,675
		2020	20	75.5	3,930	94.5	6,697	107.0	17,614
	High fraction discarded	2011	20	64.7	7,903	85.9	14,969	105.5	46,891
		2012	20	66.6	8,133	87.9	15,306	106.8	47,469
		↓	↓	↓	↓	↓	↓	↓	↓
		2019	20	75.0	9,155	93.9	16,364	107.6	47,818
		2020	20	75.8	9,253	94.2	16,419	107.2	47,650

Conclusions

- Large amounts of discarding
- Spawning output has been increasing
 - Low recent exploitation rates
 - High recruitment in early and late 1990's
- Very likely to currently be above 40% unfished spawning output and increasing