



**NOAA**  
**FISHERIES**

# Gulf of Alaska Northern Rockfish

Ben Williams, Pete Hulson, Chris  
Lunsford, Curry Cunningham



# Northern rockfish

No changes to model 18.2

Data changes:

- Catch updated through Oct 2020
- Survey biomass (2019)
- Survey age comps (2019)
- Fishery age comps (2018)
- Fishery length comps (2019)
- Age error matrix update

Changes are presented iteratively

Model 18.2 (2020) – previous accepted model uses VAST “bridge” estimate

Model 18.2a (2020) – previous accepted model uses VAST GAP estimate

Model 18.2b (2020) – Model 18.2a with updated age error matrix

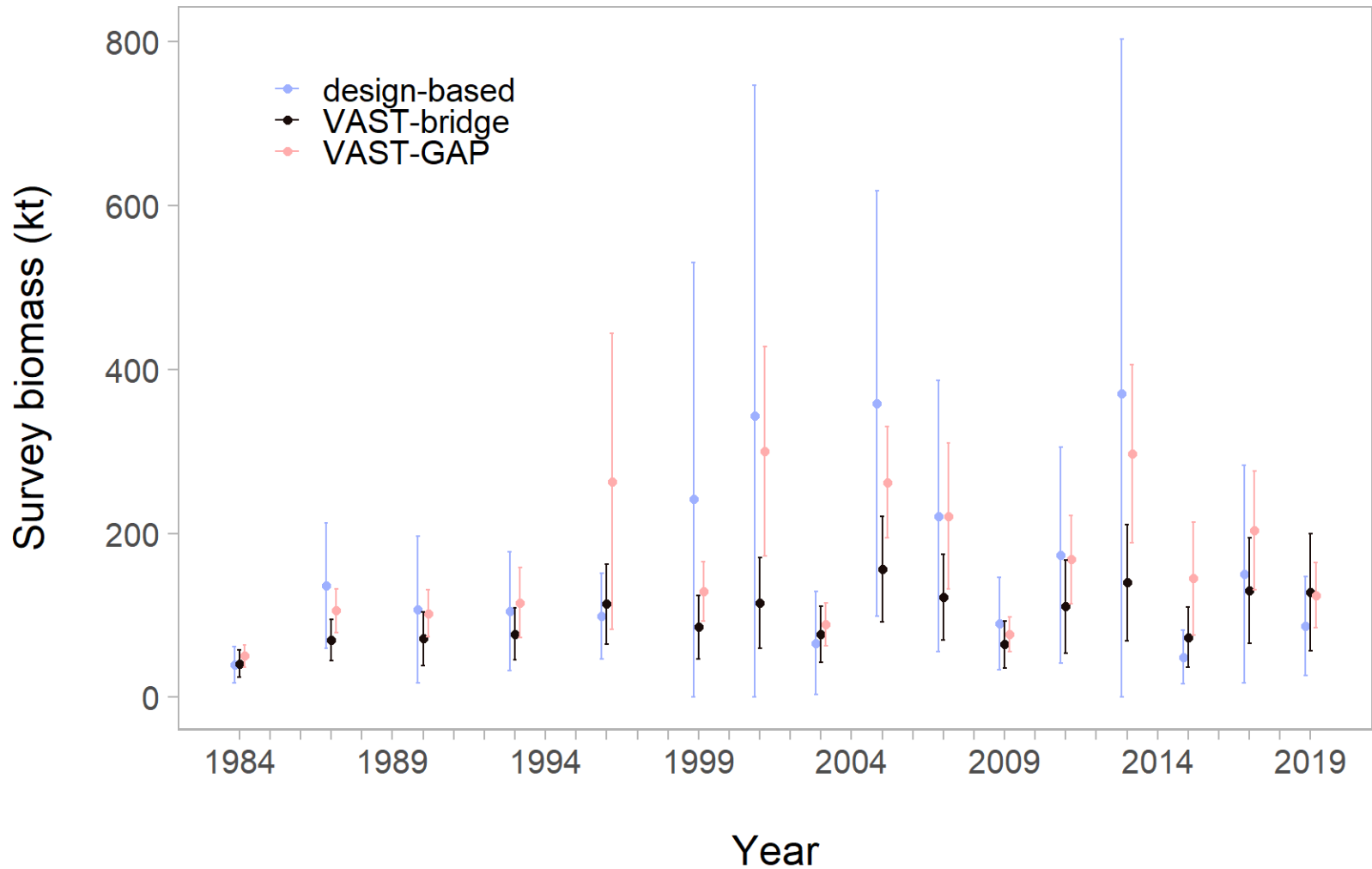


# Northern rockfish – VAST settings

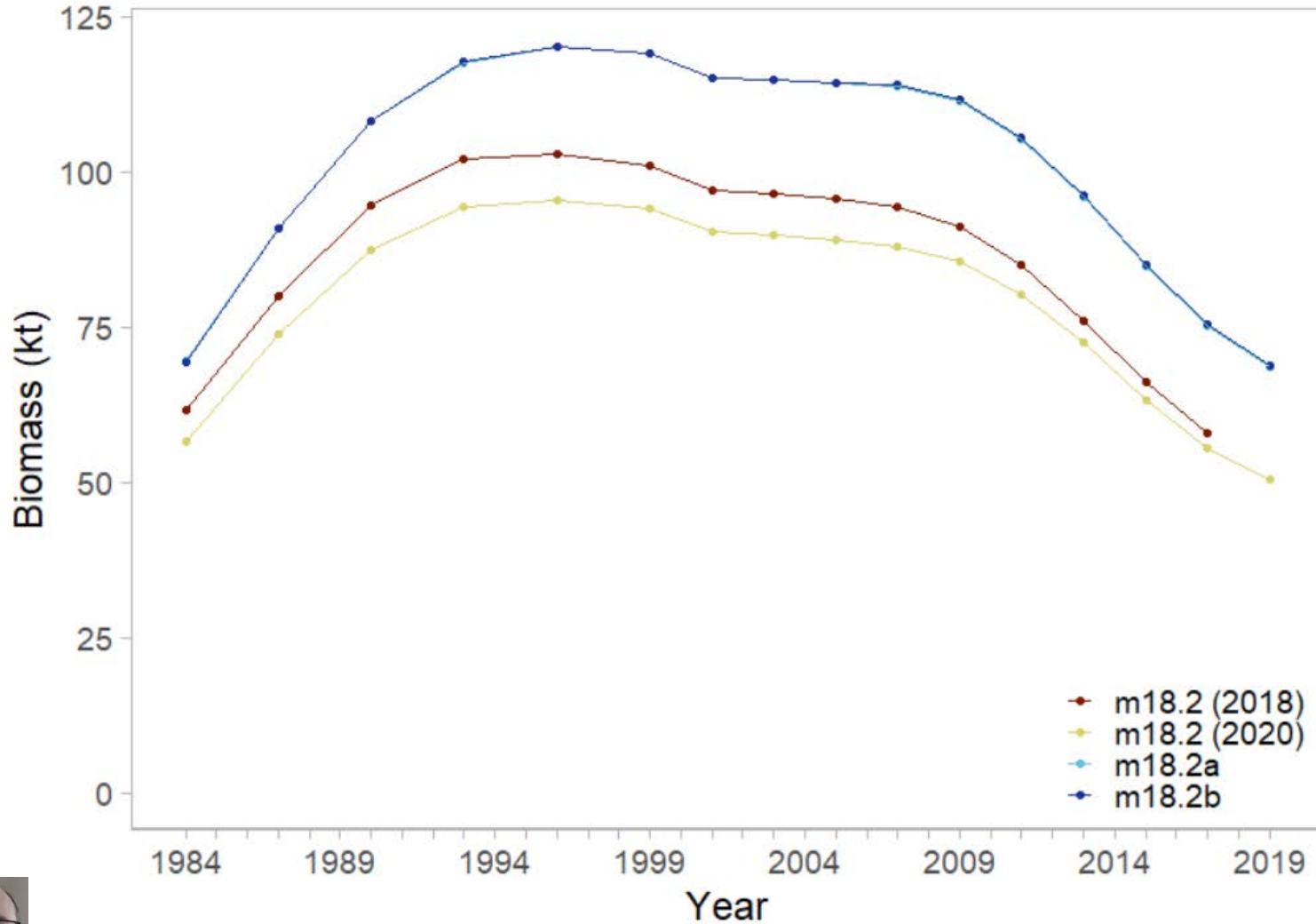
Model	VAST settings					
	Computed by	Knots	Depth	Obs model	PCR	Bias correction
Model 18.2 (2018)	MESA	1000	all	delta	lognormal	No
Model 18.2 (2020)	GAP	500	<700 m	delta-gamma	lognormal	No
Model 18.2a (2020)	GAP	500	<700 m	delta-gamma	gamma	Yes



# Northern rockfish – survey biomass

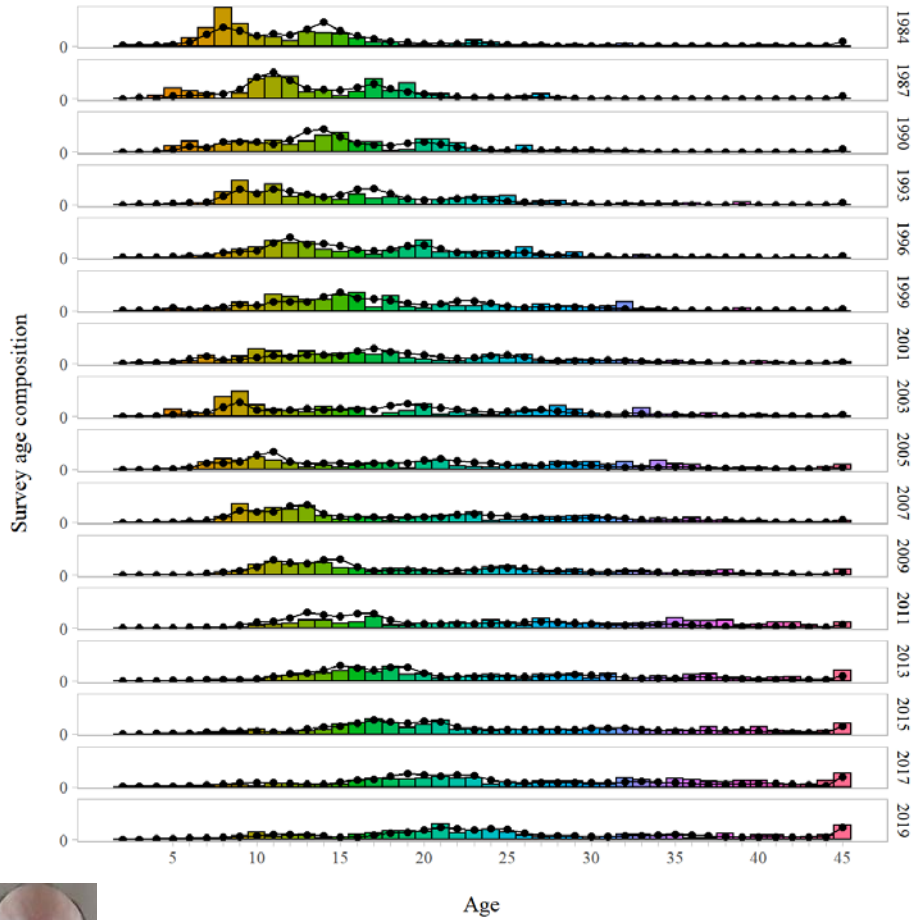


# Northern rockfish – survey biomass

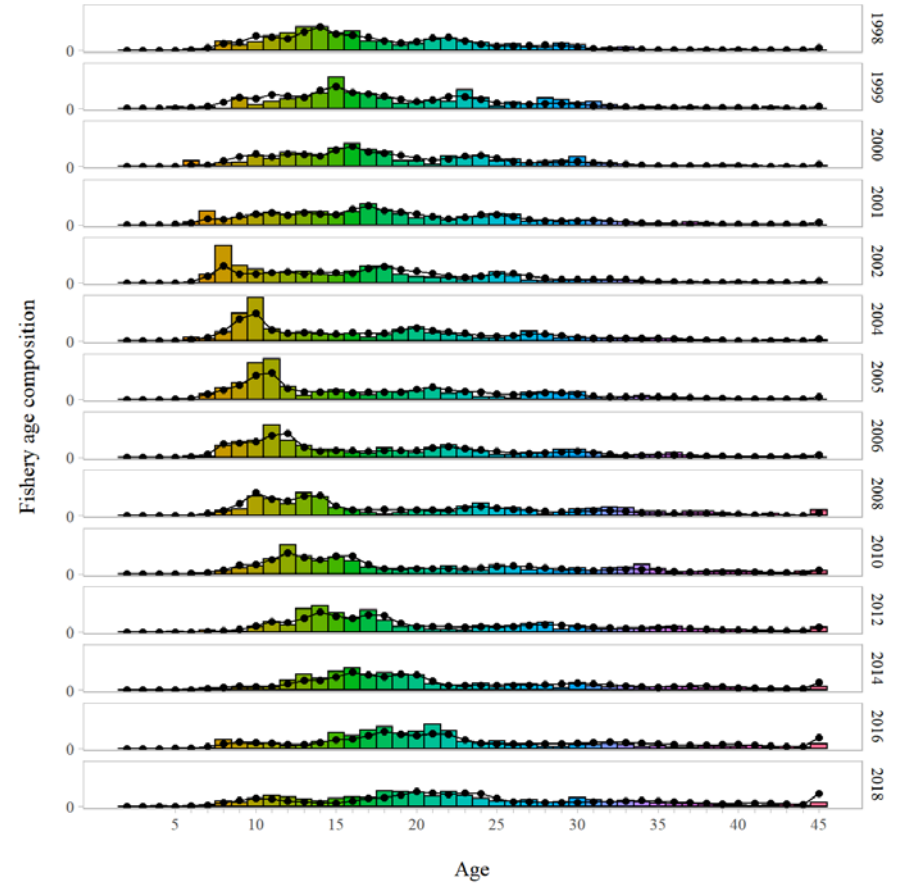


# Northern rockfish – age

## Survey

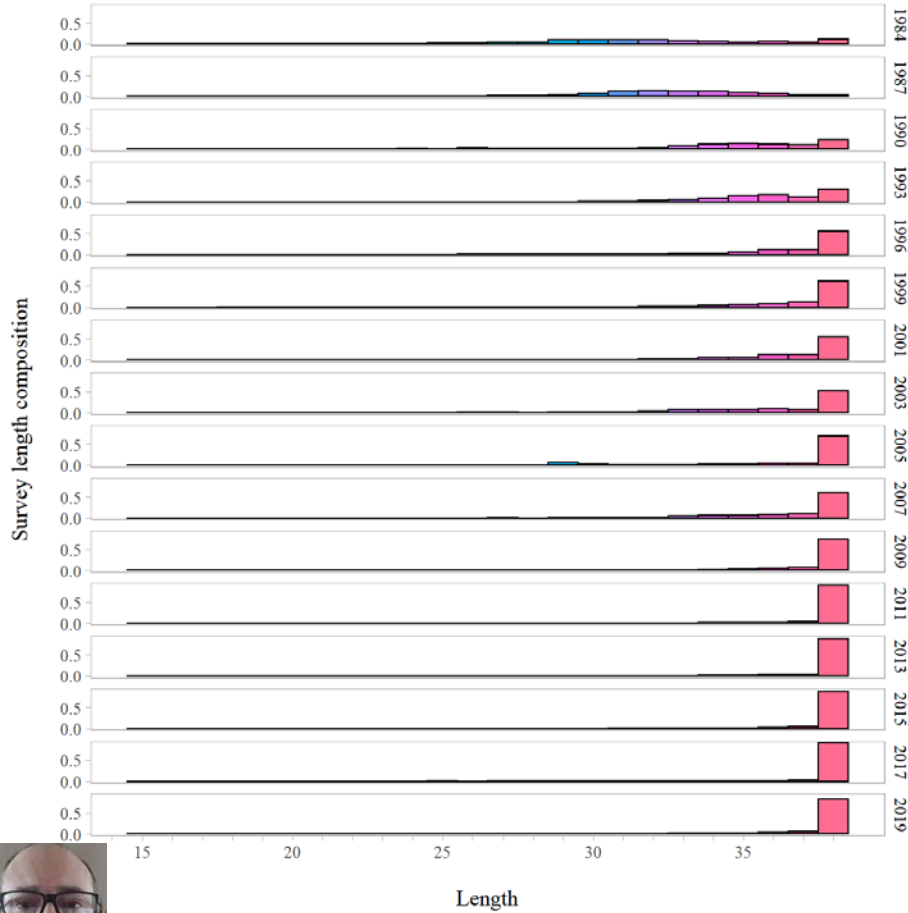


## Fishery

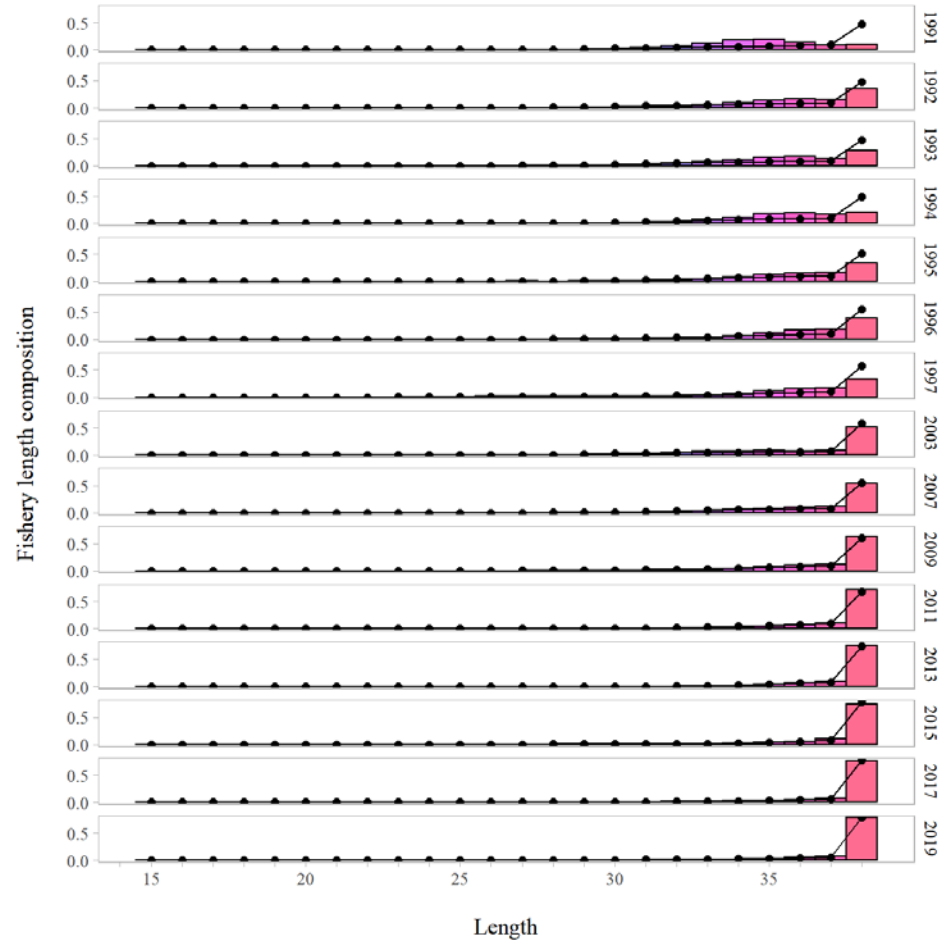


# Northern rockfish – length

## Survey

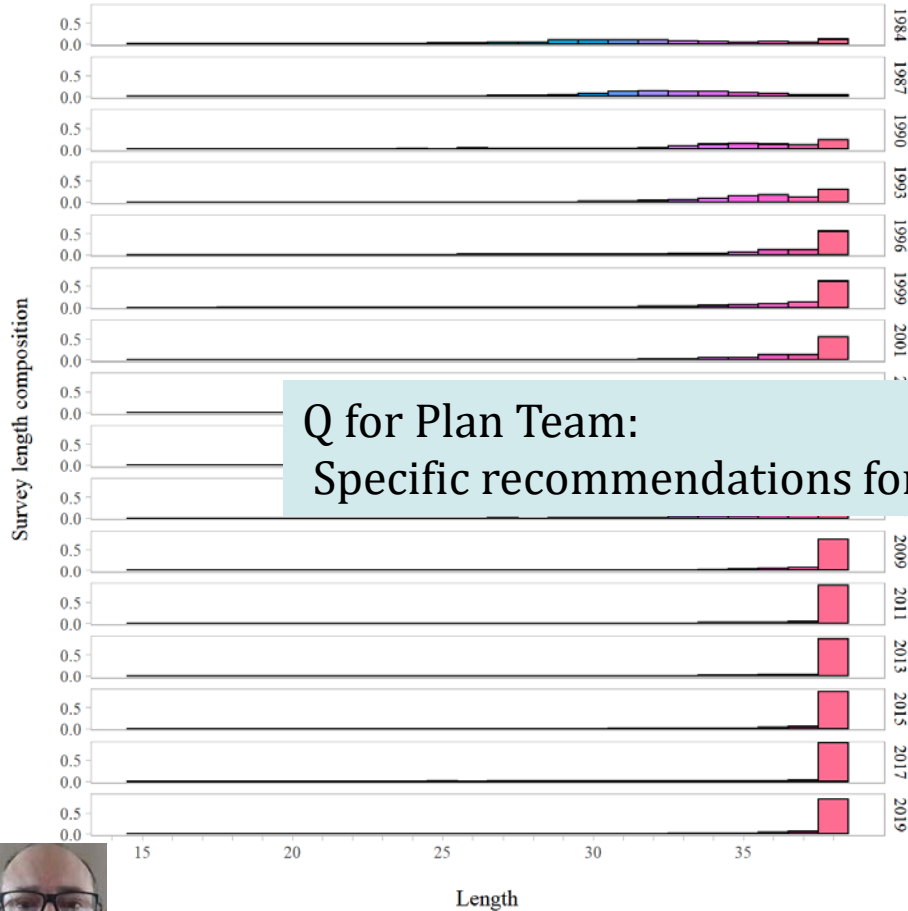


## Fishery

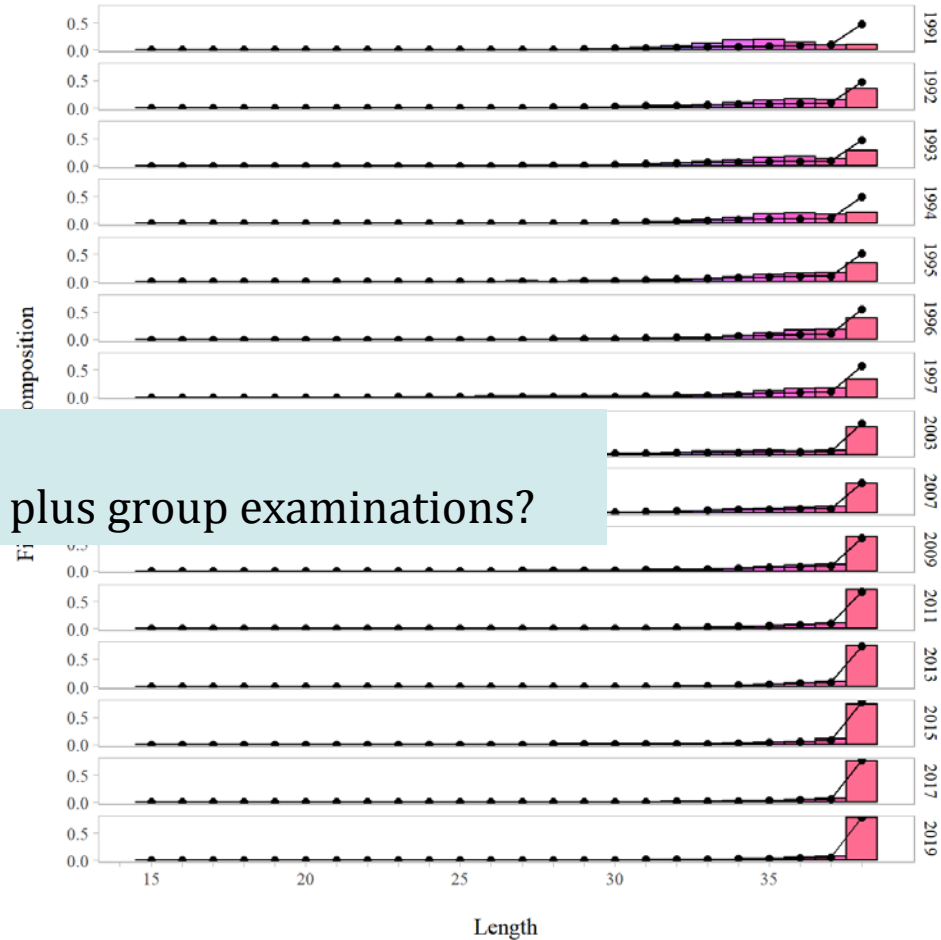


# Northern rockfish – length

Survey



Fishery

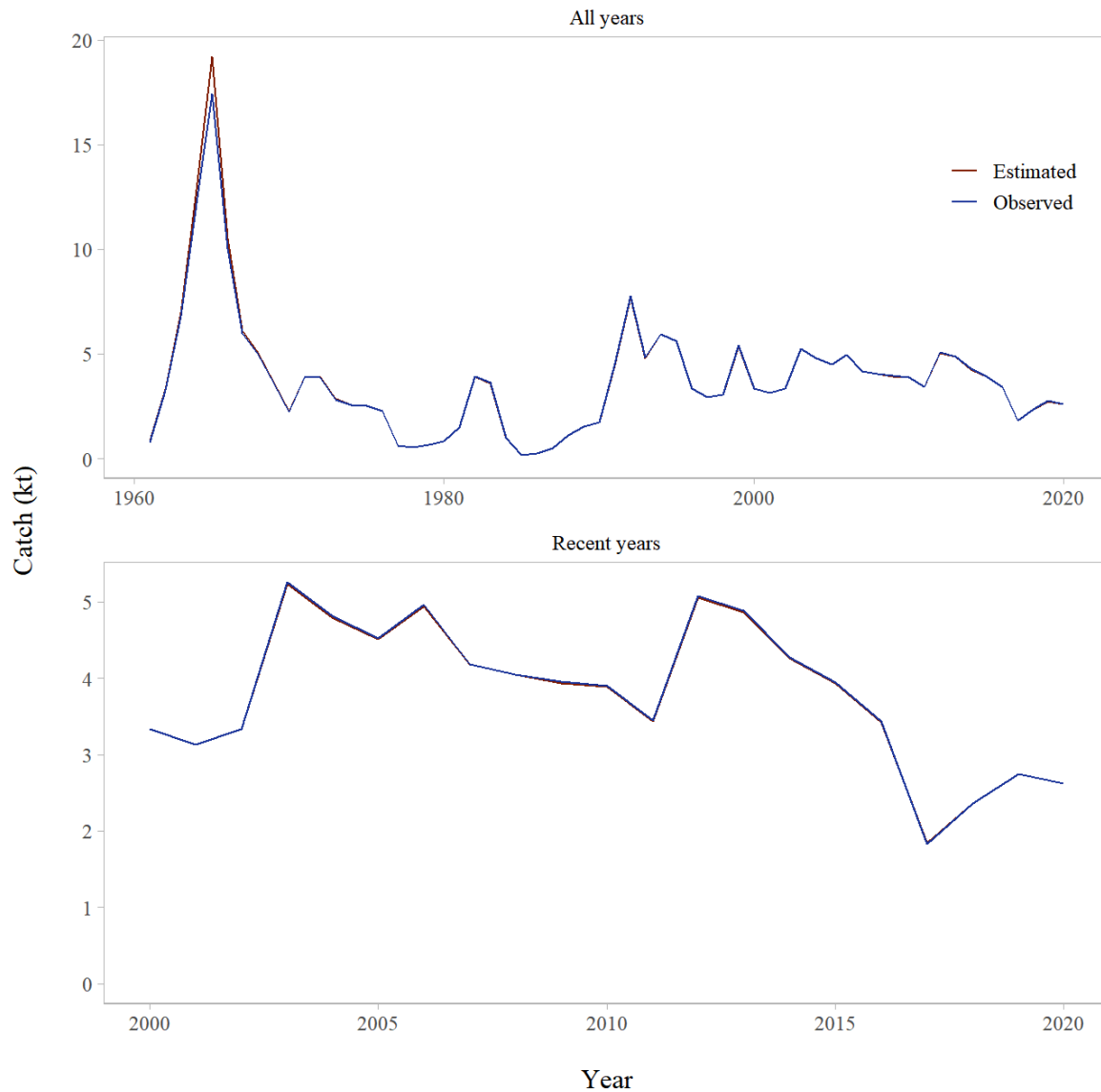


Q for Plan Team:  
Specific recommendations for plus group examinations?

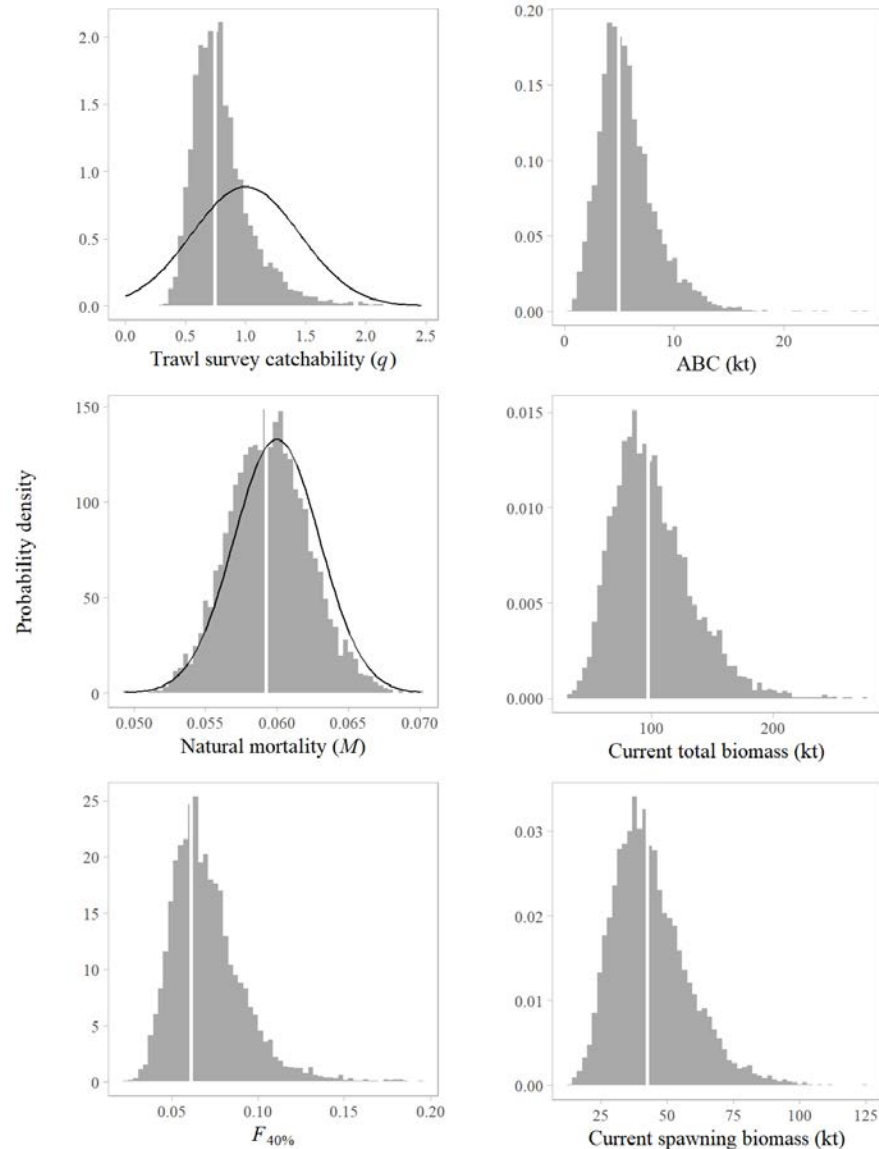




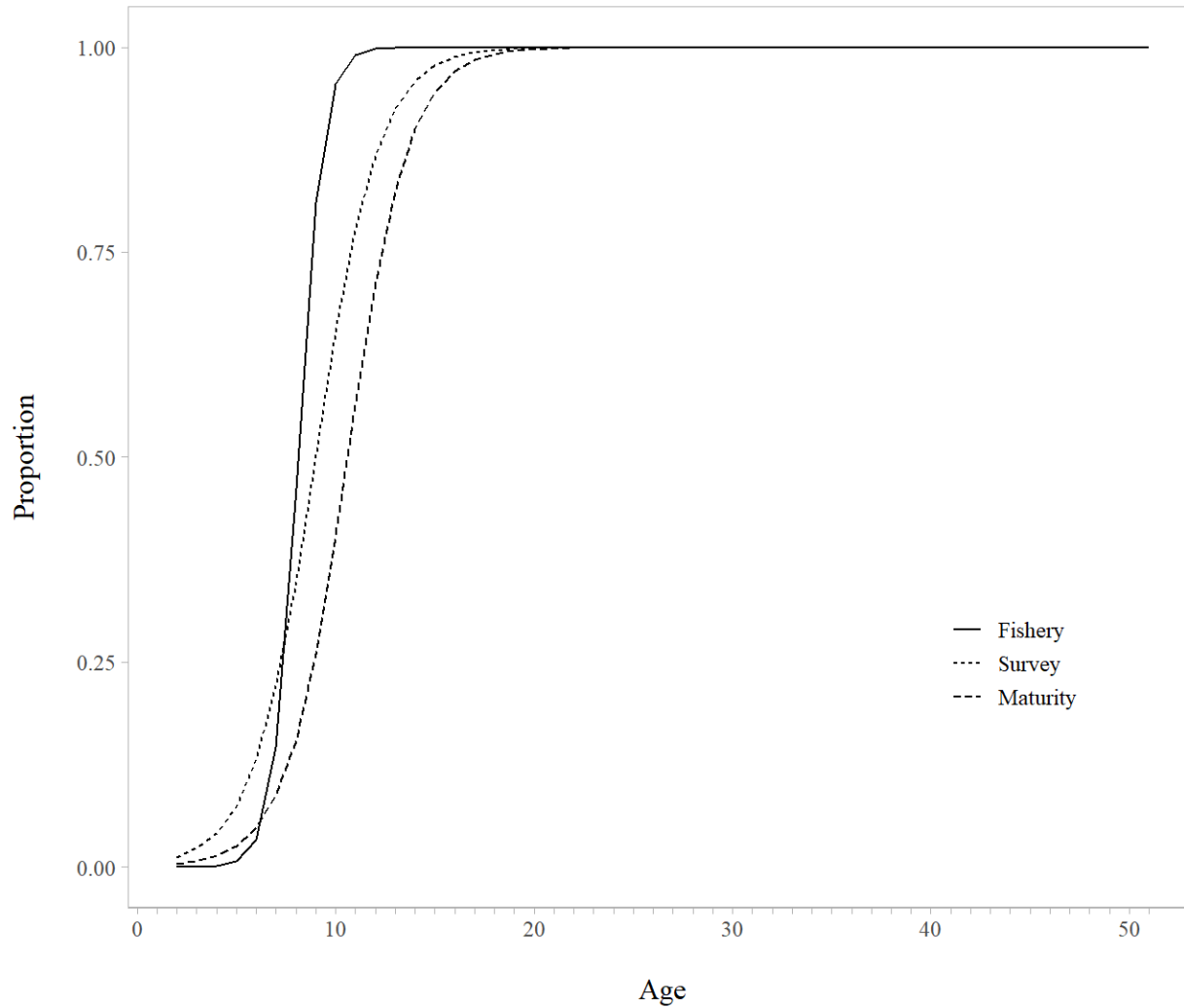
# Northern rockfish – catch



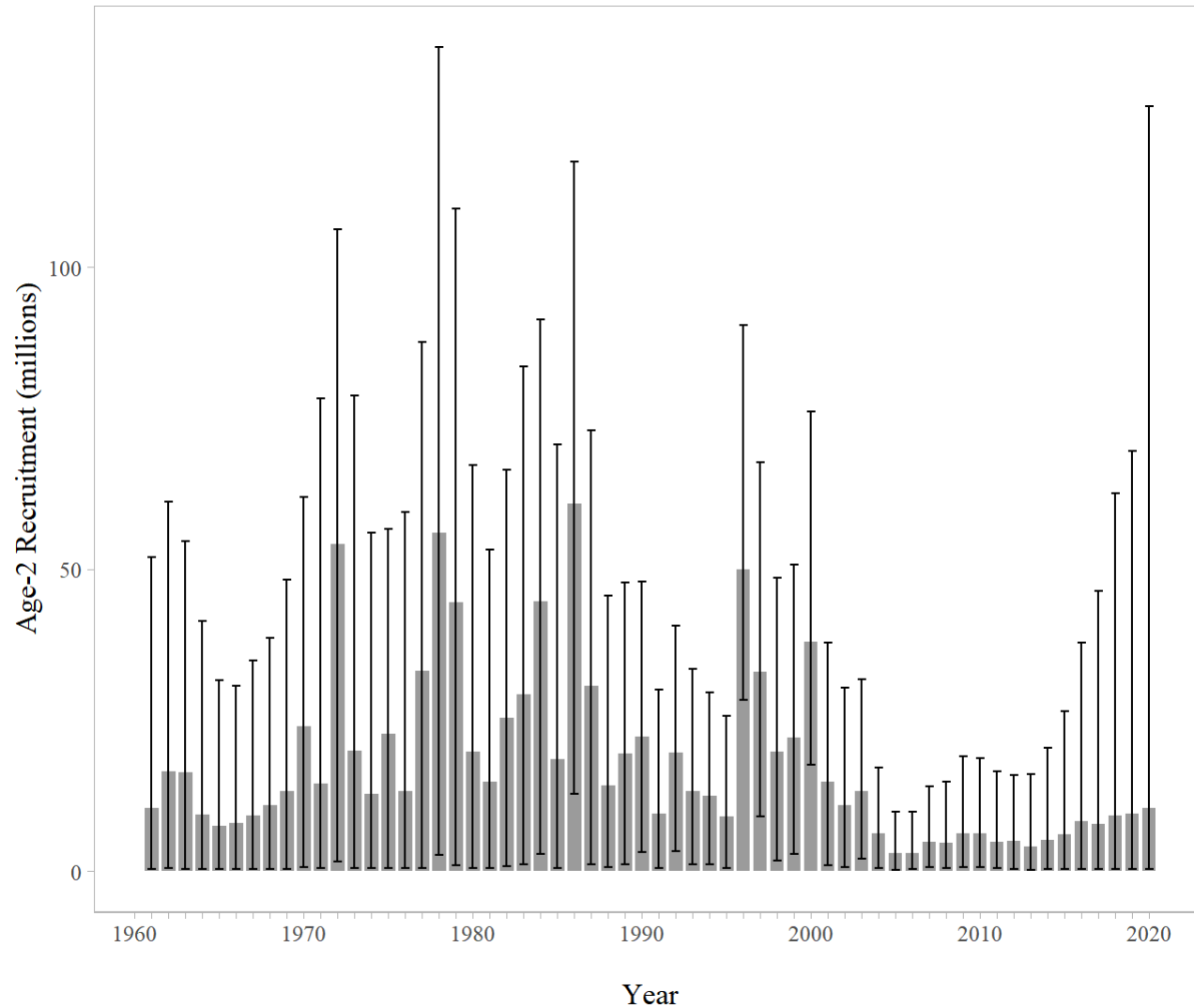
# Northern rockfish – m18.2b results



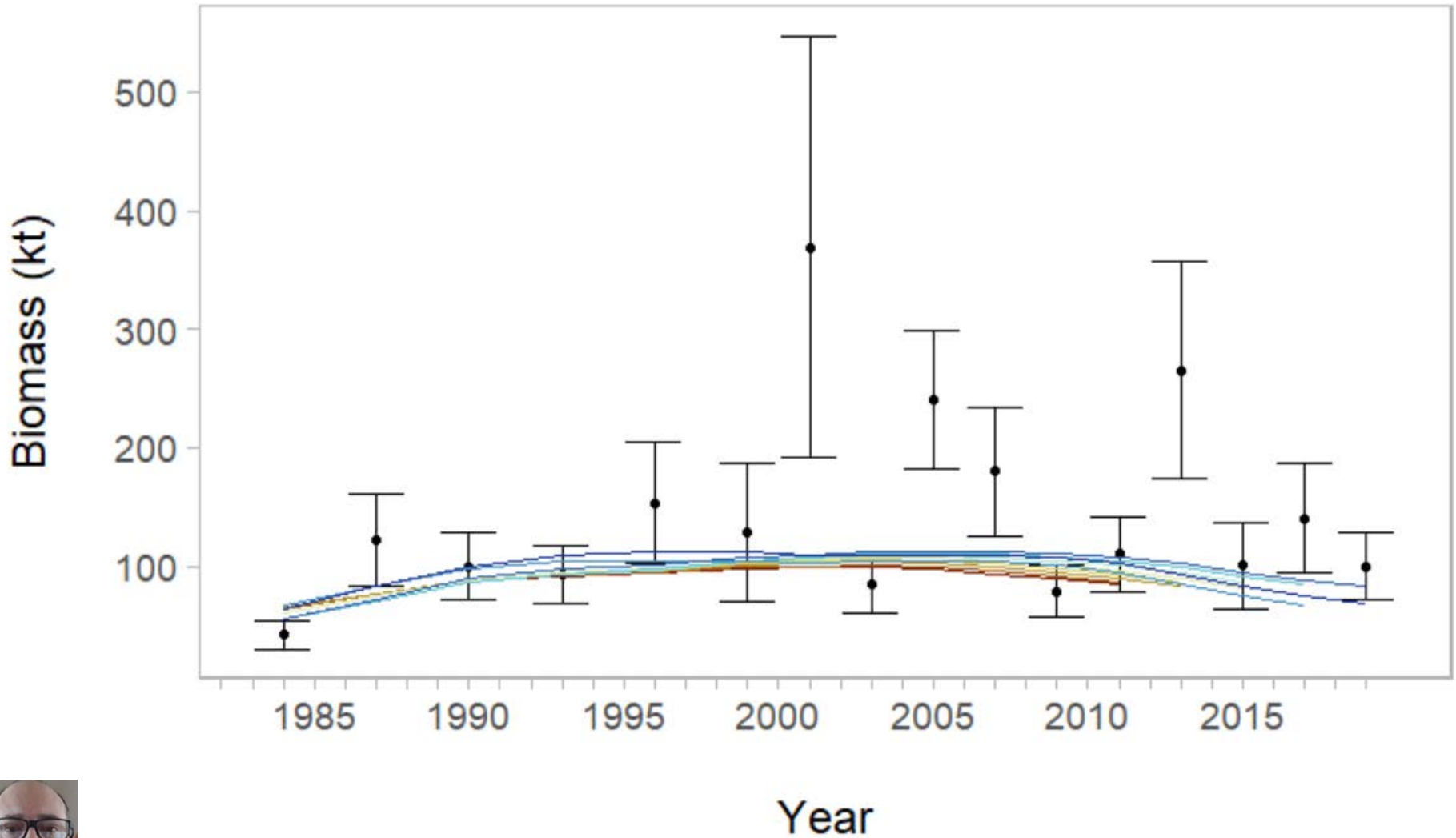
# Northern rockfish – m18.2b results



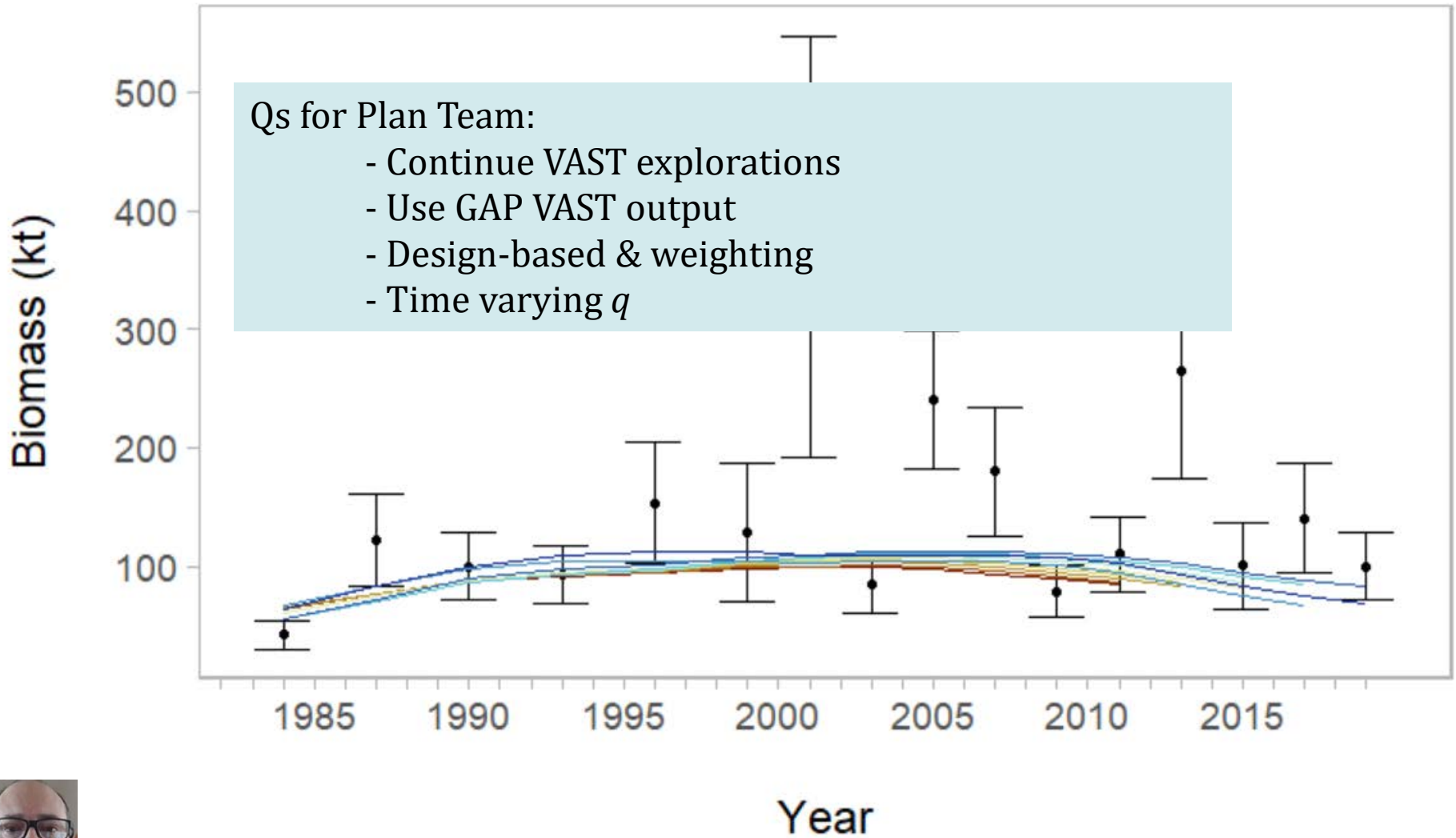
# Northern rockfish – m18.2b results



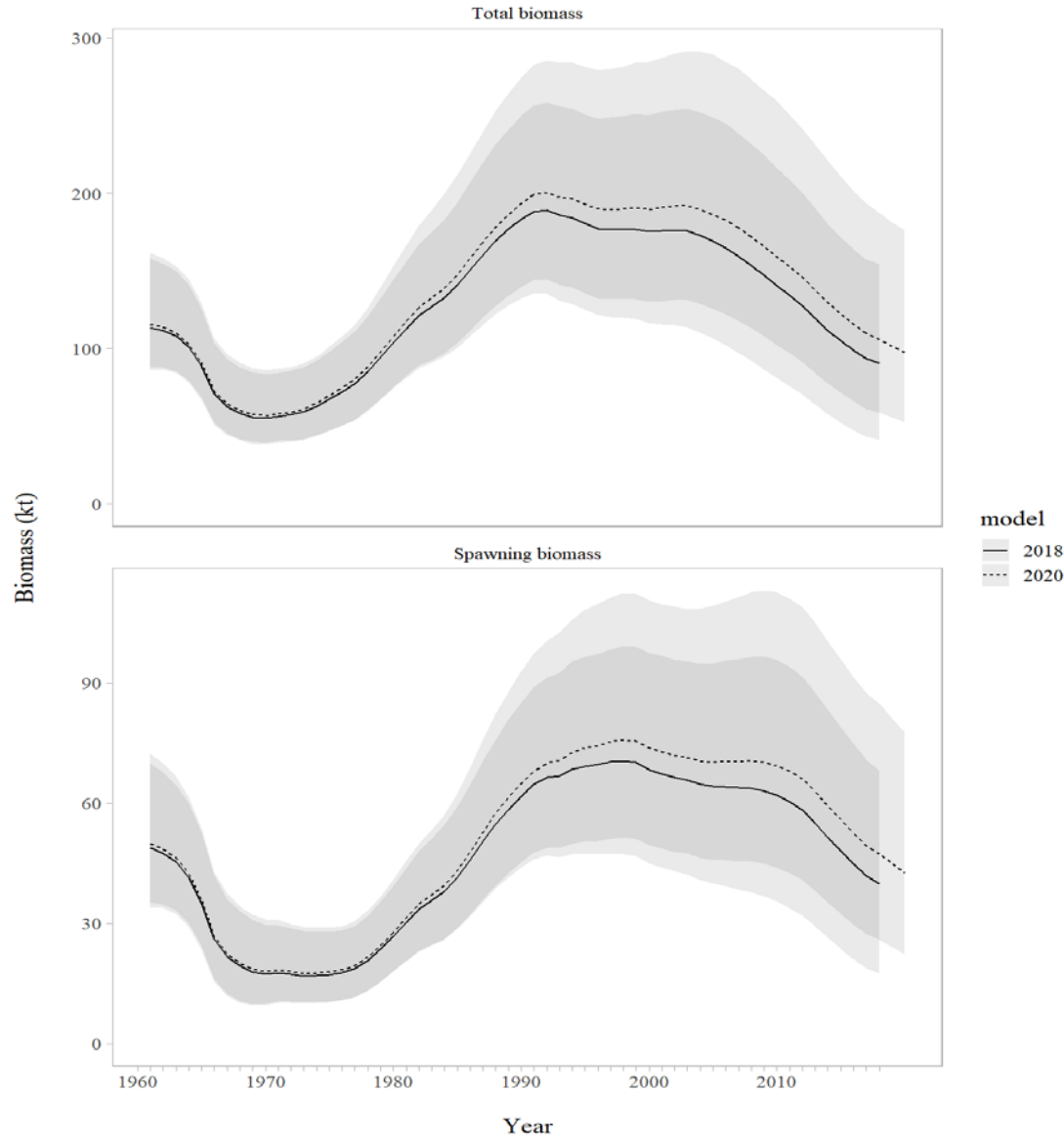
# Northern rockfish – m18.2b results



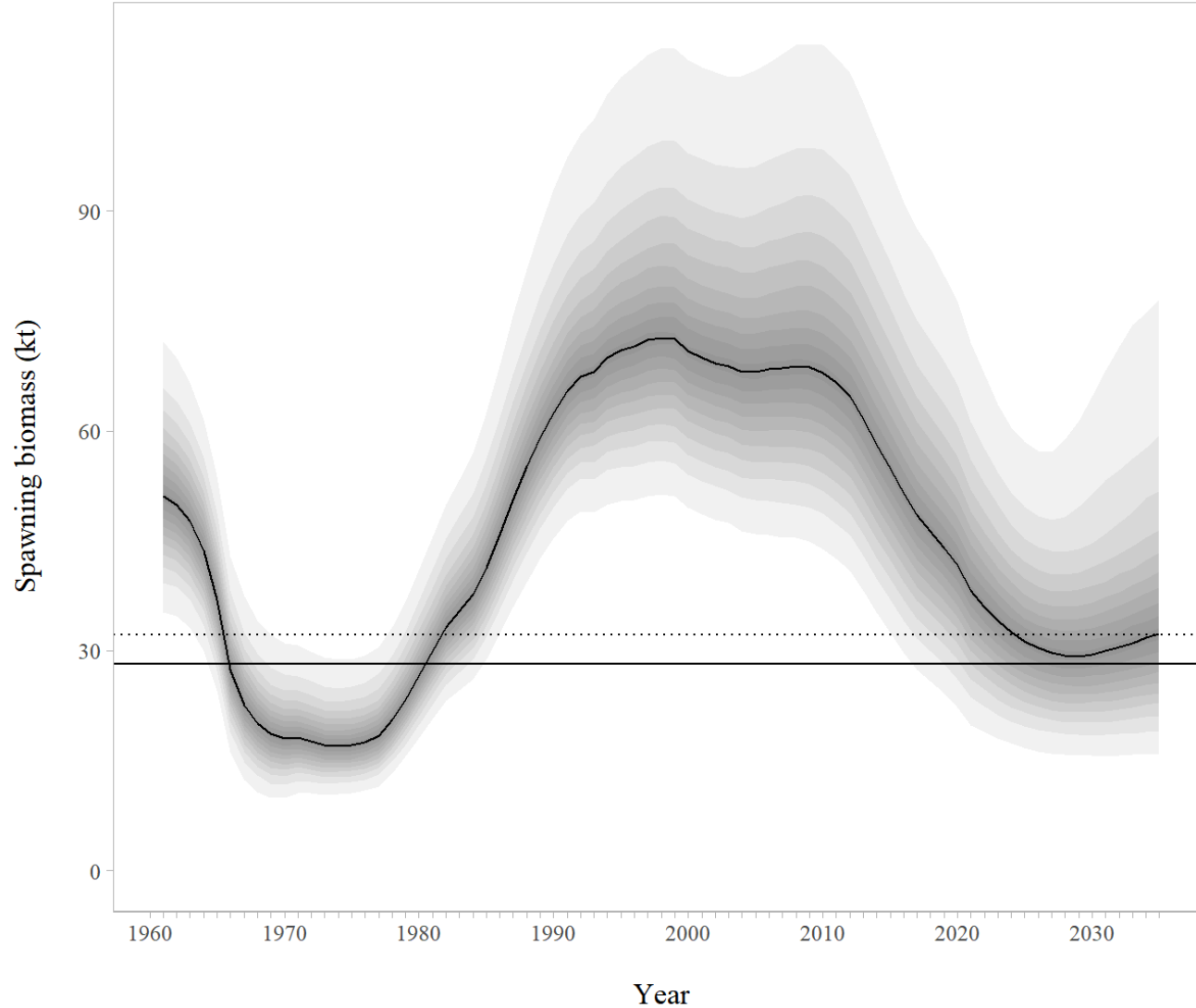
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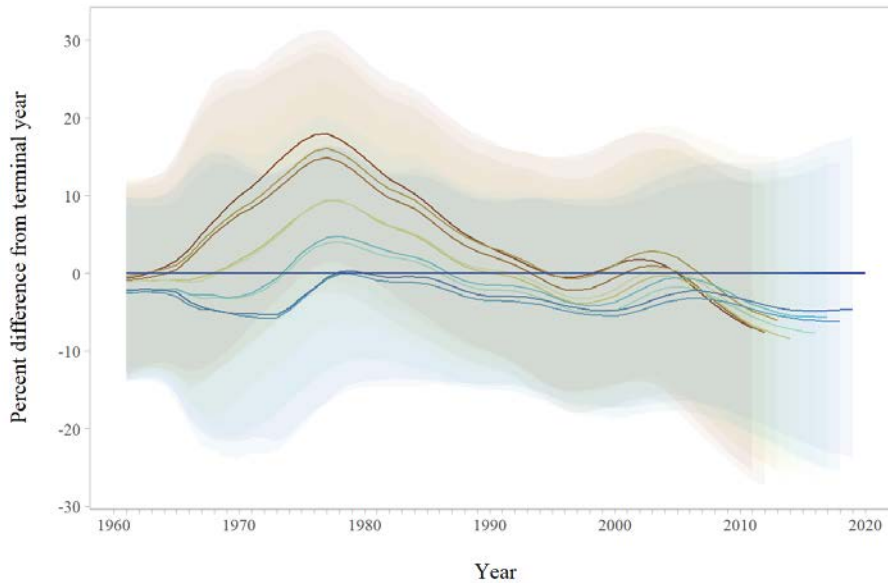
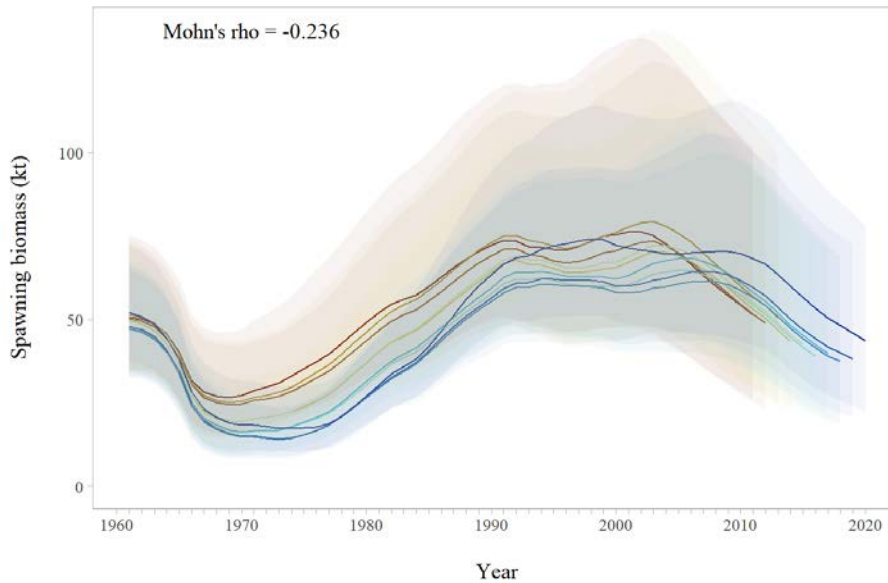


# Northern rockfish – m18.2b results

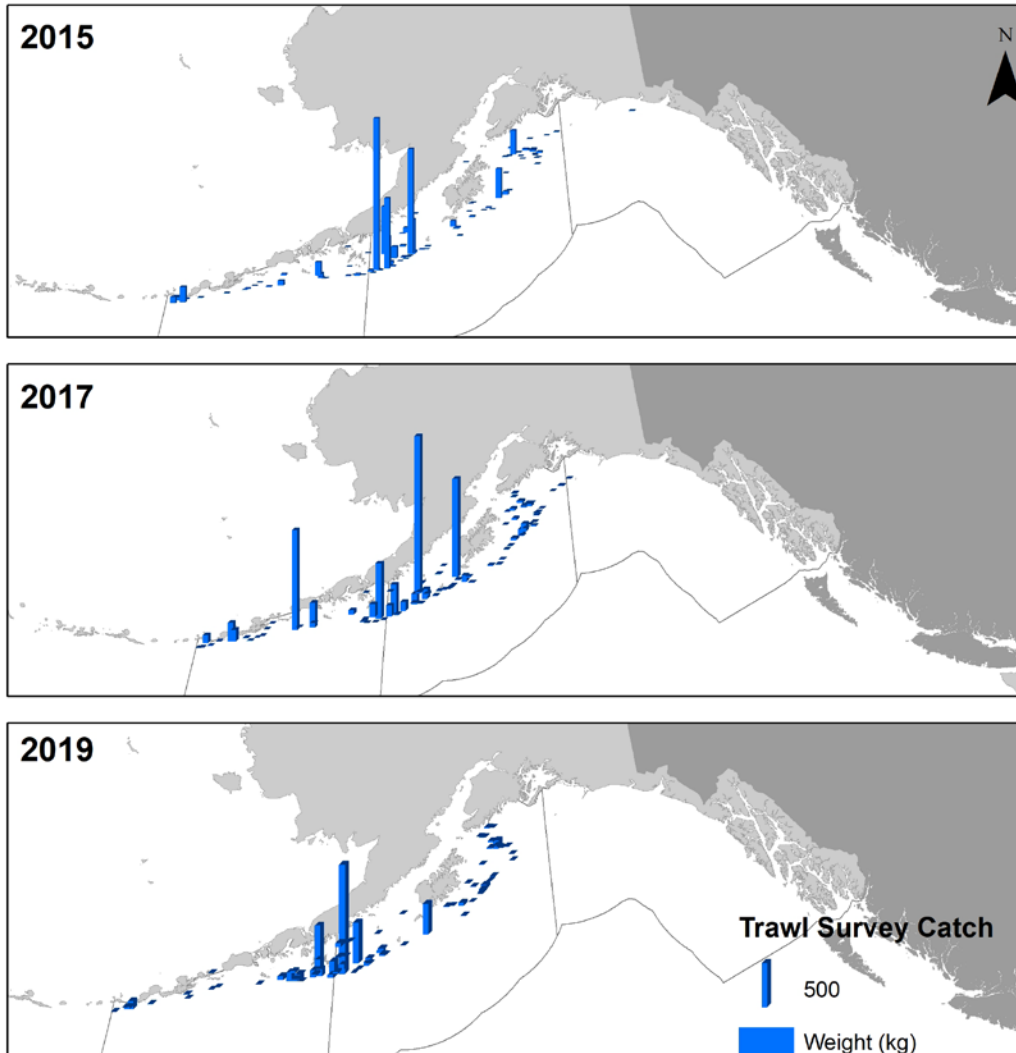




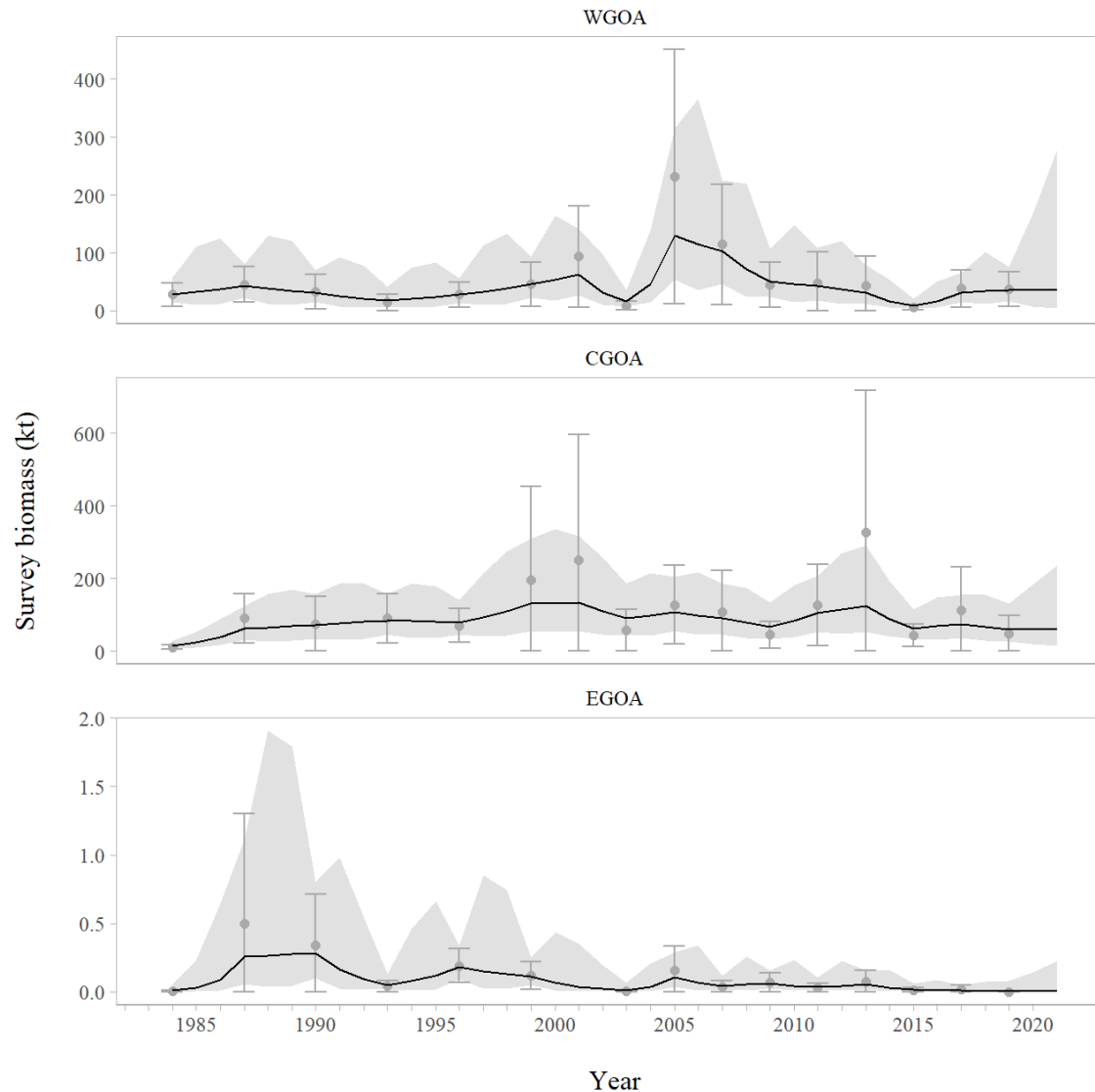
# Northern rockfish – m18.2b results



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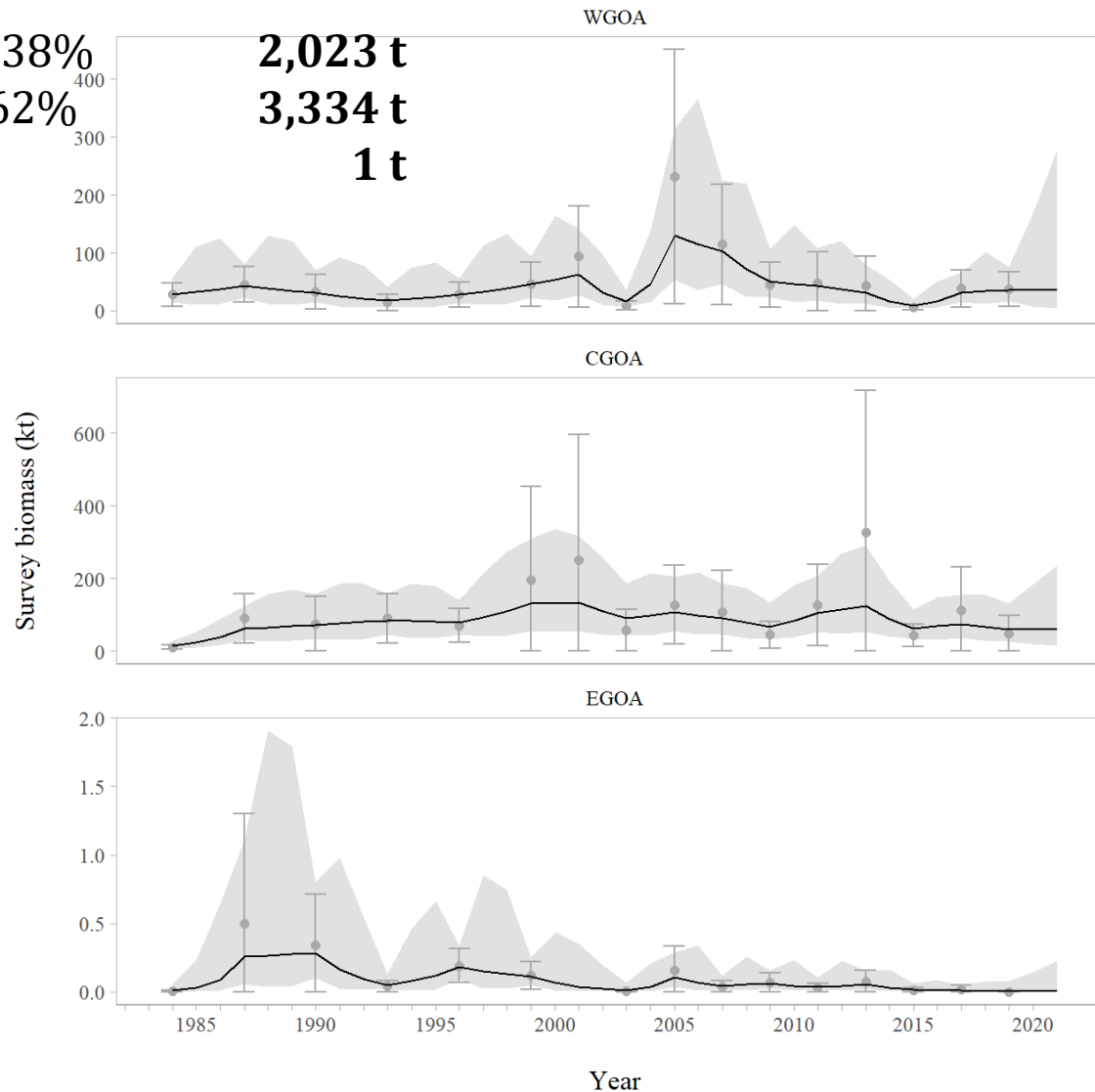


# Northern rockfish – apportionment



# Northern rockfish – apportionment

WGOA: 26% → 38%  
CGOA: 74% → 62%  
EGOA: <1%



# Northern rockfish – risk table

Assessment:	<b>Level 1</b>
Pop dynamics:	<b>Level 1</b>
Enviro:	<b>Level 1</b>
Fishery:	<b>Level 1</b>

Reasoning: No *increase* in concern for the metrics.



# Northern rockfish

	As estimated or		As estimated or	
	specified last year for:		recommended this year for:	
<b>Quantity</b>	2020	2021	2021	2022 <sup>1</sup>
<b>M (natural mortality)</b>	0.059	0.059	0.059	0.059
<b>Tier</b>	3a	3a	3a	3a
<b>Projected total (age 2+) biomass (t)</b>	85,057	83,108	102,715	99,597
<b>Projected female spawning biomass (t)</b>	34,410	32,435	42,791	40,462
<b>B<sub>100%</sub></b>	76,199	76,199	84,832	84,832
<b>B<sub>40%</sub></b>	30,480	30,480	33,933	33,933
<b>B<sub>35%</sub></b>	26,670	26,670	29,691	29,691
<b>F<sub>OEL</sub></b>	0.073	0.073	0.073	0.073
<b>maxF<sub>ABC</sub></b>	0.061	0.061	0.061	0.061
<b>F<sub>ABC</sub></b>	0.061	0.061	0.061	0.061
<b>OFL (t)</b>	5,143	4,898	6,396	6,088
<b>max ABC (t)</b>	4,312	4,107	5,358	5,100
<b>ABC (t)</b>	4,312	4,107	5,358	5,100
	As determined last year for:		As determined this year for:	
<b>Status</b>	2018	2019	2019	2020
<b>Overfishing</b>	No	n/a	No	n/a
<b>Overfished</b>	n/a	No	n/a	No
<b>Approaching overfished</b>	n/a	No	n/a	No



# Questions?

[ben.williams@noaa.gov](mailto:ben.williams@noaa.gov)



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