

Consideration of a revision to the 2020 directed sardine TAC

SWG-PEL Meeting
20th August 2020

Carryn de Moor

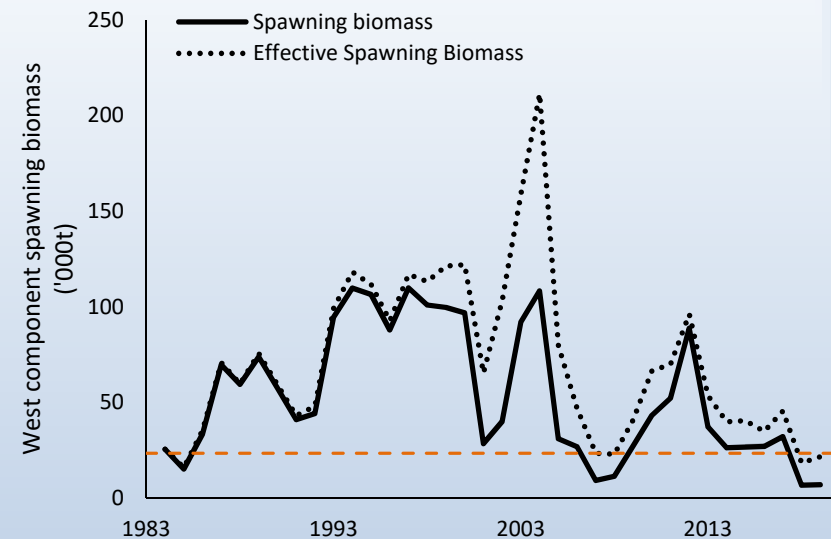
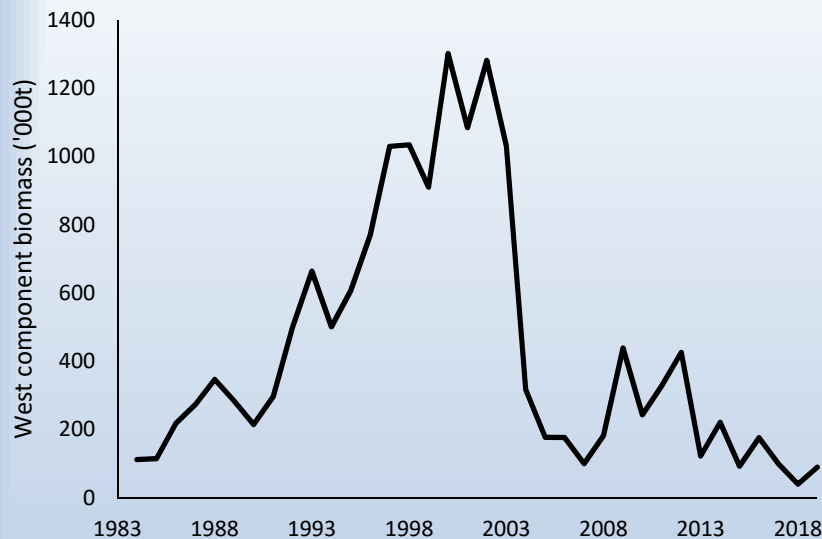


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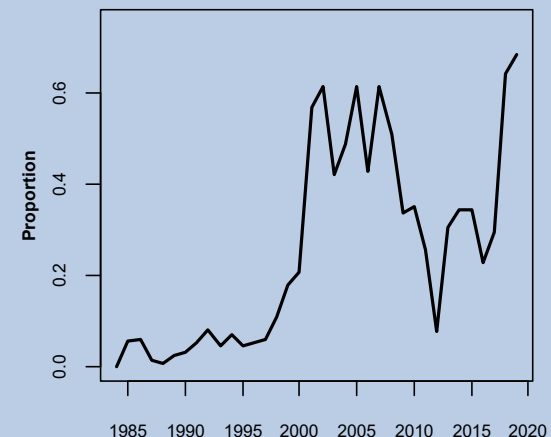
Should the directed sardine TAC be increased?

- “Industry requested the SWG-PEL to consider a possible increase to the directed sardine TAC taking into consideration the June 2020 survey estimate of recruitment as was done for anchovy”
- ...”under the same decision-making criteria applied in April”
FISHERIES/2020/AUG/SWG-PEL/69
- My “thoughts”...

What's the “problem”?



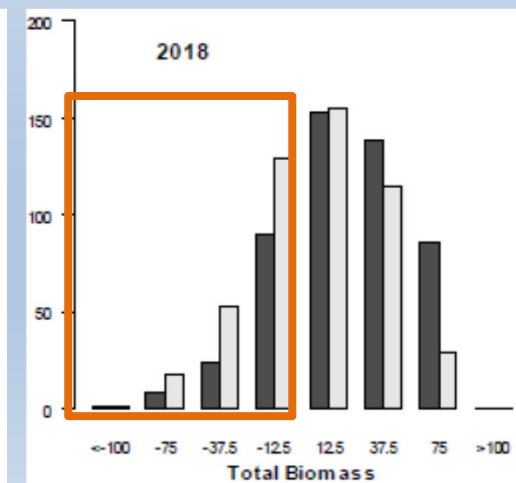
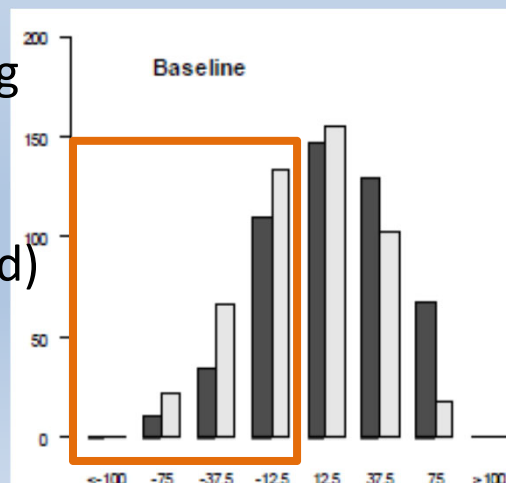
West component biomass estimated to be very low i
Short-term projections don't indicate any change from immediate future
West effSSB < risk threshold in 2018 and 2019
West SSB even lower



Proposal 1

- **No Increase**

- Non-negligible possibility of west component biomass DECREASING from Nov 2019 to 2020 (in April we said ideally we'd not want a decrease)
- April 2020 decision heavily influenced by “pressing socio-economic circumstances”
- Any realised recruitment during the course of the year that may be higher than that previously assumed would benefit the population (west and south), the fishery and the ecosystem
- (In the same way that we wouldn't consider decreasing the TAC mid-year if realised recruitment may be lower than that previously assumed)



Proposal 2a

- **Increase of 1 000t on both coasts**
 - June 2020 survey estimate of 7.01 billion fish
 - “Three highest” (or 11.5 billion) November 2019 recruitment scenario

Proposal 2b

- **Increase of 3 000t on both coasts**
 - Total catch option of 41 050t
 - June 2020 survey estimate of 11.778 billion fish
 - 14.14 billion November 2019 recruitment scenario
 - Revisit the April 2020 decision making criteria assuming 14.14 billion instead of “random” recruitment

Table 5a

[illegible]

Table 5a

					Additive Δ in B			Relative Multiplicative Δ		
	Total	West	South	ByC	5%ile	20%ile	50%ile	5%ile	20%ile	50%ile
2019	0	0	0	0						
	23	6.5	7	9.5				0.86	0.88	0.90
2020	0	0	0	0	-35	-8	17	1	1	1
	32.05	11.65	13	7.4	-45	-19	7	0.89	0.91	0.92
	34.05	11.65	13	9.4	-47	-20	6	0.88	0.90	0.92
	34.05	13.65	13	7.4	-46	-20	6	0.88	0.90	0.91
$N_{w,0,2018,0}^S = 14.14$	0	0	0	0	-29	-4	21	1	1	1
	35.05	11.65	13	10.4	-41	-17	8	0.9	0.91	0.93
	37.05	12.65	14	10.4	-42	-17	8	0.9	0.91	0.92
	39.05	13.65	15	10.4	-42	-18	7	0.89	0.90	0.92
	41.05	14.65	16	10.4	-43	-18	7	0.89	0.90	0.91
	43.05	15.65	17	10.4	-43	-19	6	0.88	0.89	0.91
	45.05	16.65	18	10.4	-44	-19	5	0.88	0.89	0.9

Proposal 2b

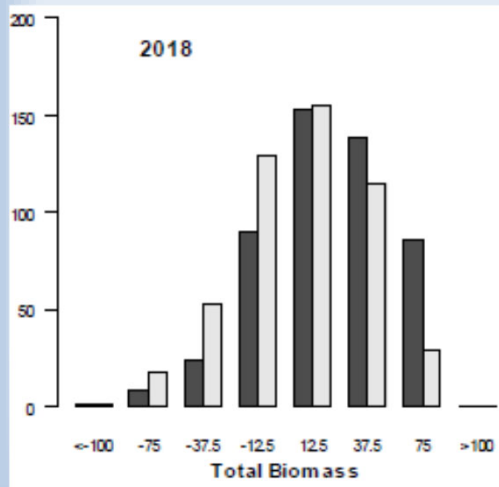
- **Increase of 3 000t on both coasts**
 - Total catch option of 41 050t
 - Same relative multiplicative change in west effSSB as agreed in April 2020
 - Similar additive change in B as agreed in April 2020. However, note the “bonus” of incoming recruitment to November 2020 biomass of 4 000t is split 50:50 between the fishery and future resource growth
 - April 2020 decision allowed for a 12 000t additional depletion in biomass at 20%ile. 41 050t allows for a 14 000t additional depletion in biomass at 20%ile
 - At the 5%ile the April 2020 decision allowed for a 11-12 000t additional depletion in biomass. 41 050t allows for 13-14 000t additional depletion in biomass, splitting the 6 000t “bonus” 50:50 or 75:50 to fishery:growth.
 - At the 50%ile the April 2020 decision allowed for an 11 000t additional depletion in biomass. 41 050t allows for 14 000t additional depletion, splitting the 4 000t “bonus” 50:50.

Proposal 2b

- **Increase of 3 000t on both coasts**

- Total catch option of 41 050t

- most of the “benefit” is allocated to the fishery



		West Component					South Component				
		No catch	April 2020 34 050t	Current 35 050t	41 050t	43050t	No catch	April 2020 34 050t	Current 35 050t	41 050t	43050t
Recruitment scenario	“Random”	69%	56%	55%			97%	91%	90%		
	$N_{W,0,2018,0}^S$ = 14.14	75%	60%	60%	59%	58%	~100%	99%	99%	99%	98%

Proposal 2b

- **Increase of 3 000t on both coasts**
 - Total catch option of 41 050t
 - Impact on south component is greater than that considered 'acceptable' in April 2020. From 0.95 to 0.94.
 - I'm comfortable with this, but...

Proposal 2b Summary

- **Increase of 3 000t on both coasts**
 - Total catch option of 41 050t
 - Effective west SSB should increase from 2019 to 2020; 90% of that expected under a no catch scenario
 - 41-44% chance that west biomass will decrease from 2019 to 2020
 - Although April 2020 decision was already heavily influenced by “pressing socio-economic circumstances”, this still further considers these circumstances and allows 75% of any possible “bonus” in the resource biomass due to incoming recruitment to be assigned to the fishery, and 25% to resource growth

Some notes

- No increase in small sardine bycatch during 2020
- Short-term projections based on baseline model only. Results sensitive to assumptions eg November movement
- “Relative Multiplicative Δ ” based on “Multiplicative Δ in eff SSB”
- “Additive Δ in effSSB” to compare with “Additive Δ in B”
- Ideally wanted “Relative Δ in B” too, but decrease in B precluded this
- As per original request, and consistent with anchovy, revisit the sardine TAC recommendation in the same manner as April 2020

Consideration of a revision to the 2020 directed sardine TAC

Thank you!

Table 5a

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	Total	West	South	ByC	5%ile	20%ile	50%ile	5%ile	20%ile	50%ile
2019	0	0	0	0						
	23	6.5	7	9.5				0.86	0.88	0.90
2020	0	0	0	0	-35	-8	17	1	1	1
	32.05	11.65	13	7.4	-45	-19	7	0.89	0.91	0.92
	34.05	11.65	13	9.4	-47	-20	6	0.88	0.90	0.92
	34.05	13.65	13	7.4	-46	-20	6	0.88	0.90	0.91
Three highest	0	0	0	0	-6	19	1	1	1	0
	35.05	11.65	13	10.4	-19	7	0.89	0.91	0.92	0.06
	37.05	12.65	14	10.4	-19	6	0.89	0.90	0.92	0.09
	39.05	13.65	15	10.4	-20	5	0.88	0.90	0.91	0.11
	41.05	14.65	16	10.4	-20	5	0.87	0.89	0.90	0.15
	43.05	15.65	17	10.4	-21	4	0.87	0.88	0.90	0.20
	45.05	16.65	18	10.4	-21	4	0.86	0.88	0.90	0.26