OMP-18 development: constraints on inter-annual decreases in sardine TACs

SWG-PEL Meeting

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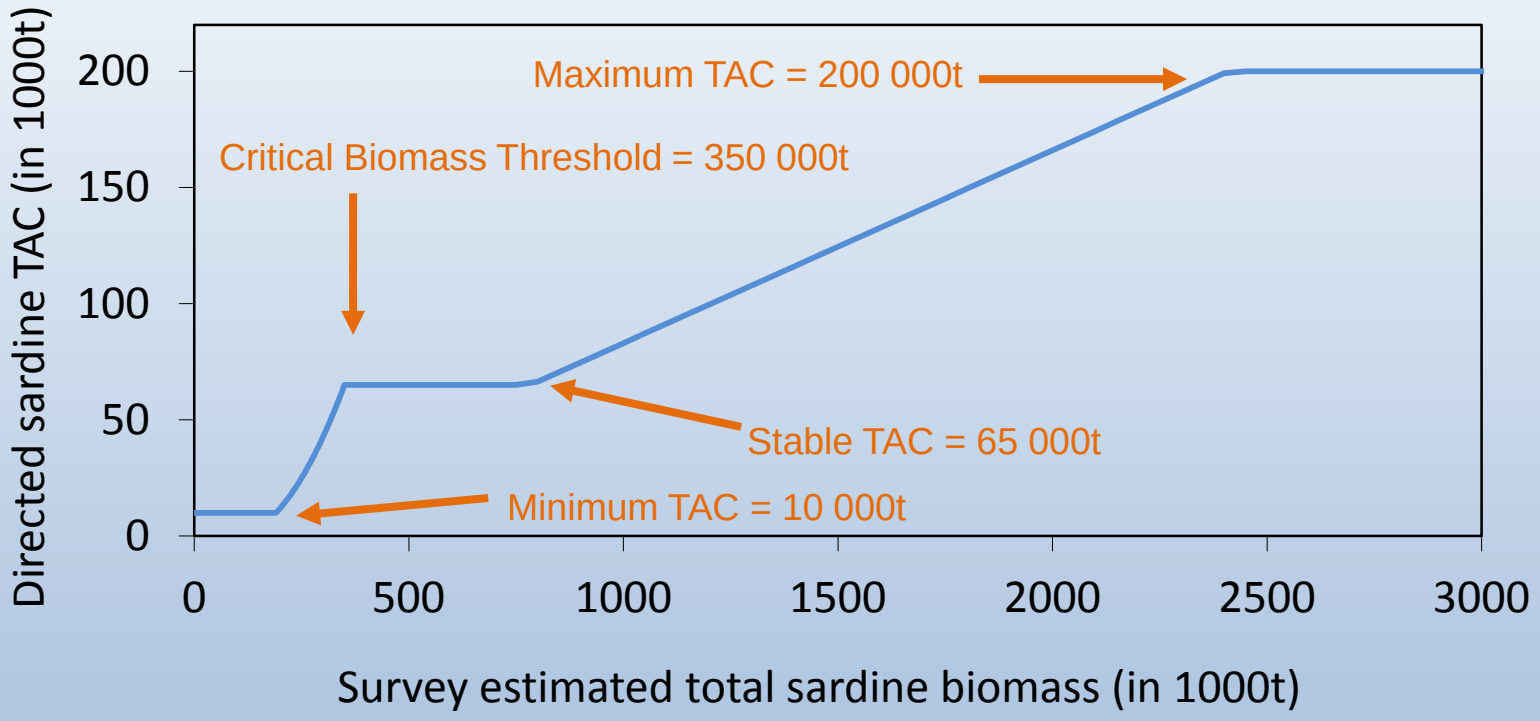
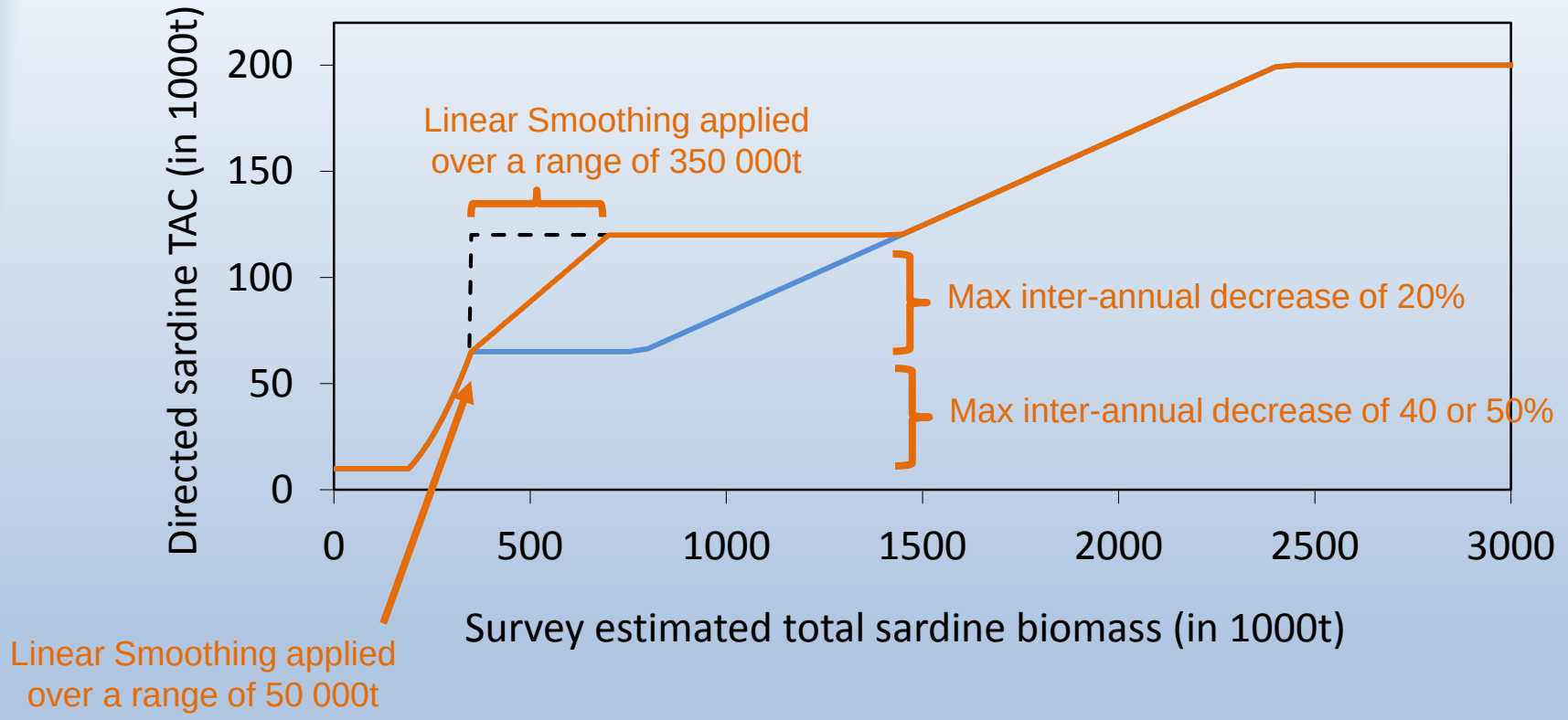
Reference Case Sardine HCR



Reference Case Sardine HCR



If TAC_{y-1} = 150 000t, 20% constraint on inter-annual decrease applies:
0.8×150 000t = 120 000t

Constraints on inter-annual increase/decrease when $B_{y-1}<B_{crit}$

- When Critical Biomass metarule employed ($B_{y-1}<B_{crit}$), TAC_y calculated from quadratic curve with

(i) TAC_y constrained to increase*/decrease by at most x% from TAC_{y-1} if $B_{y-1}<B_{crit}$

(ii) TAC_y constrained to increase*/decrease by at most x% from min(TAC_{y-1}; $c^S_{stbl}/(1-p^S_{crit})$) if $B_{y-1}<B_{crit}$

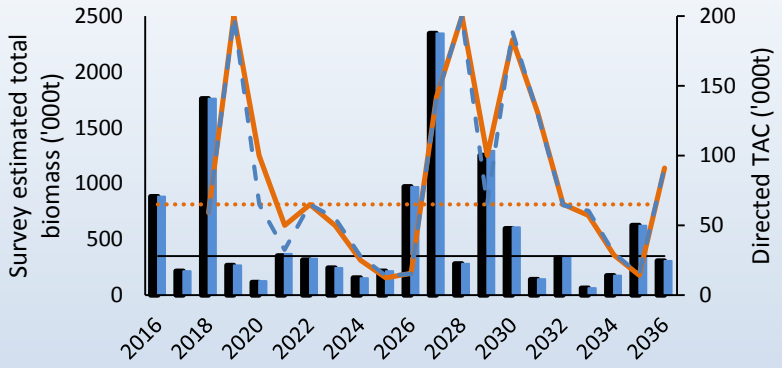
e.g. c^S_{stbl} =65 & p^S_{crit}=0.4: 108 333t

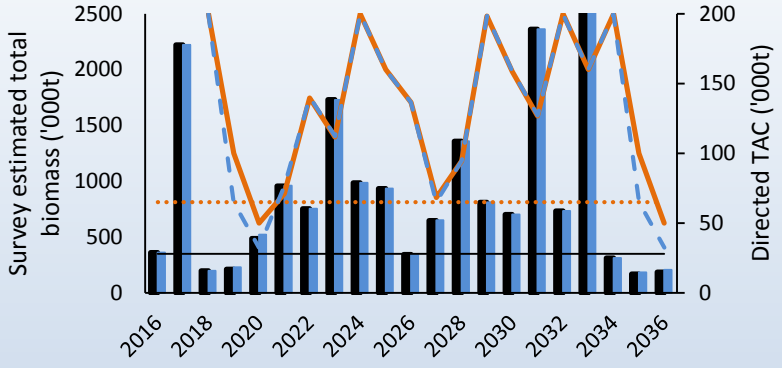
c^S_{stbl} = 65 & p^S_{crit}=0.5 : 130 000t

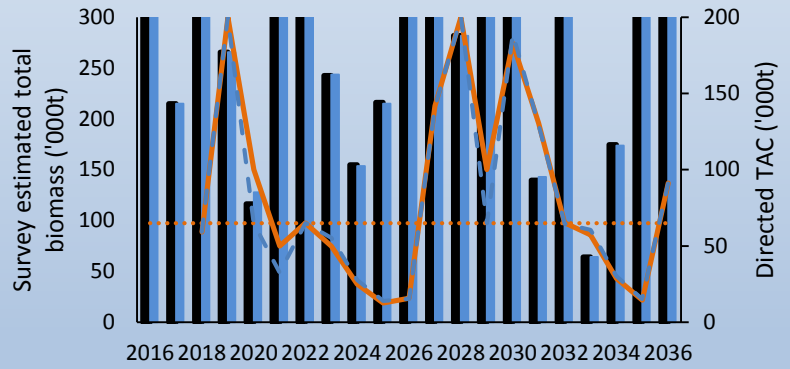
Same β for both Options; Option (ii) has a lower risk

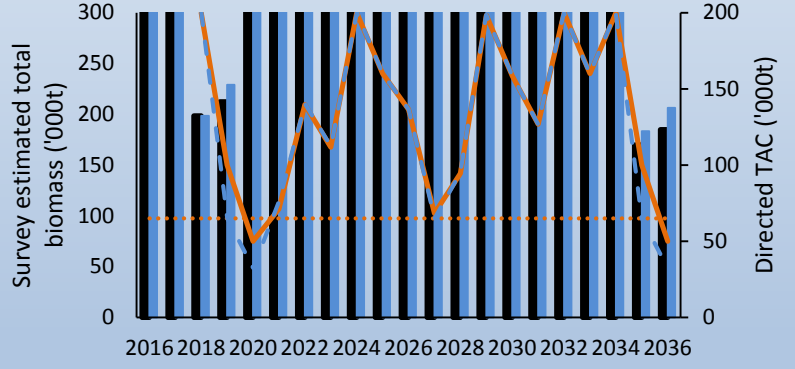
* Constraint is max{p^S_{crit} TAC_{y-1}, 10 000t}

Example Total Directed Catch Trajectories









Option (i)
Option (ii)

Option (i) v Option (ii)

Option (ii) more conservative
- **lower TACs**
- **higher biomass**

Difference in TACs in 4% of cases		
	Average	Median [90%ile]
p^S_{crit}=0.4	23	21 [2, 55]
p^S_{crit}=0.5	18	15 [2, 35]
p^S_{crit}=0.4	0.25	0.24 [0.04,0.46]
p^S_{crit}=0.5	0.20	0.19 [0.02,0.35]

Option (i) – Option (ii)

[Option (i) – Option (ii)] / Option(i)

	Difference in B_{tot} in 4% of cases		Difference in B^{sp}_{west} in 4% of cases	
	Average	Median [90%ile]	Average	Median [90%ile]
p^S_{crit}=0.4	19.2	16.4 [1.9,42.8]	3.5	2.1 [0.0,12.2]
p^S_{crit}=0.5	12.7	10.1 [1.4,28.1]	2.5	1.5 [0.0,8.5]
p^S_{crit}=0.4	0.04	0.03 [0.00,0.12]	0.05	0.04 [0.00,0.14]
p^S_{crit}=0.5	0.03	0.02 [0.00,0.07]	0.03	0.00 [0.00,0.04]

Option (ii) – Option (i)

Option (ii) – Option (i) / Option(i)

Numbers in '000t

Option (i) v Option (ii)

	Difference in B_{tot} in 4% of cases		Difference in B^{sp}_{west} in 4% of cases	
	Average	Median [90%ile]	Average	Median [90%ile]
p^S_{crit}=0.4	19.2	16.4 [1.9,42.8]	3.5	2.1 [0.0,12.2]
p^S_{crit}=0.5	12.7	10.1 [1.4,28.1]	2.5	1.5 [0.0,8.5]
p^S_{crit}=0.4	0.04	0.03 [0.00,0.12]	0.05	0.04 [0.00,0.14]
p^S_{crit}=0.5	0.03	0.02 [0.00,0.07]	0.03	0.00 [0.00,0.04]

Option (ii) – Option (i)

Option (ii) – Option (i)
Option(i)

	Difference in B_{tot} in final year		Difference in B^{sp}_{west} in final year	
	Average	Median [90%ile]	Average	Median [90%ile]
p^S_{crit}=0.4	6.9	1.3 [0.0,32.7]	1.3	0.1 [-0.1,6.9]
p^S_{crit}=0.5	4.1	0.4 [0.0,20.4]	0.8	0.0 [-0.1,4.4]
p^S_{crit}=0.4	0.02	0.00 [0.00,0.07]	0.05	0.00 [0.00,0.08]
p^S_{crit}=0.5	0.01	0.00 [0.00,0.04]	0.01	0.00 [0.00,0.06]

Option (i) – Option (ii)

Option (i) – Option (ii)
Option(i)

Numbers in '000t

b_{west}: 16 [3,68]

Recommendation

- Option (i) is used for OMP-18:

When Critical Biomass metarule employed ($B_{y-1}<B_{crit}$), TAC_y calculated from quadratic curve with TAC_y constrained to increase*/decrease by at most x% from TAC_{y-1} if $B_{y-1}<B_{crit}$

* Constraint is max{p^S_{crit} TAC_{y-1}, 10 000t}