

HORSE MACKEREL MANAGEMENT PLAN

NEXT SPEPS

1. Decide to develop or not
2. Decide on option one or two
 - ◆ Modified constant yield strategy
 - Allows 15% increase catch above trigger
 - & proportional reduction catch below trigger

OR

HORSE MACKEREL MANAGEMENT PLAN

NEXT SPEPS

- ◆ Constant yield & proportional catch strategy
 - TAC based on slope preceding 3 egg surveys & some weighting constant catch

Modified Constant Yield Strategy

Ref TAC, β val	Size of Yield		Variability of Yield					SSB	
	Median	Cum. Yield	%CV	TAC Events	0,+ve Events	-ve Events	Mean Adj.	SSB_{trig}	% Risk SSB_{1982}
100	108.3	4.30	2.17	13	11	2	8.58	1.86	0.29
110	118.2	4.09	2.38	13	10	3	8.32	1.86	0.335
120	127.9	5.07	2.60	13	10	3	7.66	1.86	0.58
130	136.3	5.42	2.86	13	10	3	6.04	1.86	0.61
140	146.2	5.8	2.89	13	9	4	5.35	1.86	0.963
150	154.0	6.14	3.11	13	9	4	3.69	1.86	1.09
160	162.6	6.47	3.32	13	9	4	1.69	1.86	1.66
170	170.9	6.76	3.61	13	8	5	-1.17	1.86	2.86
180	179.0	7.07	3.74	13	8	5	-3.54	1.86	3.49
190	183.5	7.3	4.1	13	7	6	-8.07	1.86	5.45
200	190.4	7.58	4.2	13	7	6	-11.1	1.86	6.47
210	195.9	7.78	4.53	13	6	7	-15.8	1.86	8.89
220	201.2	8.0	4.61	13	6	7	-20.2	1.86	11.8
230	203.6	8.12	4.55	13	6	7	-26.2	1.86	13.3
240	206.6	8.21	4.46	13	5	8	-32.5	1.86	15.4
250	209.7	8.32	4.38	13	5	8	-38.2	1.86	17.4

Modified Constant Yield Strategy

Ref TAC, β val	Size of Yield		Variability of Yield					SSB	
	Median	Cum. Yield	%CV	TAC Events	0,+ve Events	-ve Events	Mean Adj.	SSB_{trig}	% Risk SSB_{1982}
100	100.7	4.35	1.87	13	11	2	10.2	1.736	0.295
110	119.8	4.75	2.06	13	11	2	10.3	1.736	0.36
120	129.4	5.14	2.28	13	11	2	9.87	1.736	0.477
130	139.3	5.53	2.46	13	10	3	9.27	1.736	0.785
140	148.8	5.9	2.61	13	10	3	8.27	1.736	1.01
150	157.2	6.24	2.90	13	9	4	6.58	1.736	1.72
160	165.4	6.57	3.15	13	9	4	4.37	1.736	2.55
170	173.8	6.9	3.33	13	9	4	2.34	1.736	3.78
180	181.6	7.18	3.56	13	8	5	-0.638	1.736	5.13
190	188.5	7.5	3.78	13	8	5	-2.76	1.736	5.95
200	193.6	7.7	4.16	13	7	6	-8.23	1.736	9.43
210	201.5	7.98	4.24	13	7	6	-11.3	1.736	11.5
220	204.8	8.13	4.5	13	6	7	-17.1	1.736	14.2
230	208.0	8.24	4.34	13	6	7	-23.8	1.736	16.8
240	210.8	8.36	4.3	13	6	7	-29.8	1.736	18.3
250	215.2	8.44	4.17	13	6	7	-36.1	1.736	21.0

Modified Constant Yield Strategy

Ref TAC, β val	Size of Yield		Variability of Yield					SSB	
	Median	Cum. Yield	%CV	TAC Events	0,+ve Events	-ve Events	Mean Adj.	SSB_{trig}	% Risk SSB_{1982}
100	111.9	4.44	1.21	13	12	1	13.2	1.488	0.432
110	122.4	4.86	1.43	13	12	1	13.8	1.488	0.522
120	133.0	5.28	1.55	13	12	1	14.1	1.488	0.75
130	143.5	5.69	1.67	13	11	2	14.4	1.488	1.15
140	153.5	6.08	1.9	13	11	2	14.0	1.488	1.83
150	162.7	6.43	2.28	13	11	2	12.4	1.488	2.77
160	172.0	6.81	2.4	13	10	3	11.6	1.488	4.09
170	180.7	7.15	2.58	13	10	3	9.68	1.488	5.39
180	188.1	7.44	2.98	13	9	4	6.31	1.488	8.62
190	195.3	7.73	3.25	13	9	4	3.16	1.488	11.7
200	203.0	8.0	3.55	13	8	5	-0.366	1.488	14.4
210	209.9	8.27	3.81	13	8	5	-4.09	1.488	17.4
220	211.6	8.34	4.23	13	7	6	-12.6	1.488	23.3
230	216.9	8.51	3.97	13	7	6	-17.9	1.488	23.3
240	219.6	8.58	3.83	13	7	6	-25.6	1.488	26.0
250	220.6	8.56	3.95	13	7	6	-34.4	1.488	28.8

Constant yield & proportional catch strategy

Ref TAC, β val	Size of Yield		Variability of Yield					SSB	
	Median	Cum. Yield	%CV	TAC Events	0,+ve Events	-ve Events	Mean Adj.	SSB_{trig}	% Risk SSB_{1982}
$\beta = 1$	149.4	5.98	2.60	13	7	6	0.846	NA	2.41
$\beta = 1.01$	152.0	6.08	2.64	13	7	6	1.15	NA	2.81
$\beta = 1.02$	154.2	6.18	2.67	13	7	6	1.51	NA	3.13
$\beta = 1.03$	157.3	6.3	2.69	13	7	6	1.92	NA	3.2
$\beta = 1.04$	159.8	6.4	2.71	13	7	6	2.45	NA	3.59
$\beta = 1.05$	162.6	6.5	2.77	13	7	6	2.91	NA	3.7
$\beta = 1.06$	165.5	6.61	2.8	13	7	6	2.88	NA	4.14
$\beta = 1.07$	168.1	6.72	2.89	13	7	6	3.39	NA	4.93
$\beta = 1.08$	171.2	6.84	2.96	13	7	6	3.11	NA	5.83
$\beta = 1.09$	173.7	6.95	3.00	13	7	6	4.51	NA	6.03
$\beta = 1.1$	176.6	7.06	3.11	13	7	6	4.24	NA	7.24
$\beta = 1.11$	179.4	7.19	3.14	13	7	6	4.04	NA	7.48
$\beta = 1.12$	182.5	7.27	3.21	13	7	6	4.54	NA	10.0
$\beta = 1.13$	185.6	7.39	3.27	13	7	6	5.65	NA	10.5
$\beta = 1.14$	188.3	7.49	3.31	13	7	6	5.56	NA	12.3
$\beta = 1.15$	191.8	7.64	3.38	13	7	6	5.94	NA	12.0

Comparison

Modified Constant Yield Strategy & Constant Yield & Proportional Catch Strategy

Size of yield		Variability of yield					SSB		
Reference Year	Constant yield	NOY	TAC events	0.5xTAC adjust	1.5xTAC adjust	mean of TAC adjust %	2010	ICES SSB-SSB1982	
180	179	7.07	3.74	13	8	5	-3.54	1.86	3.49
170	174	6.9	3.33	13	9	4	2.34	1.74	3.78
170	177	7.02	3.04	13	9	4	6.04	1.61	4.01
160	172	6.81	2.4	13	10	3	11.6	1.49	4.09
B=1.07	168	6.72	2.89	13	7	6	3.39	NA	4.93
B=1.06	166	6.61	2.8	13	7	6	2.88	NA	4.44

HORSE MACKEREL MANAGEMENT PLAN

NEXT SPECS

3. Complete scientific evaluation
4. Agreed outstanding HCR rules
5. Prepare final draft management plan

HORSE MACKEREL MANAGEMENT PLAN

Indicative Timescale

- Draft management plan Excom 13th July
- Submit to Commission & ICES end July
- Evaluation ICES Working Group September
- ICES advice October
- Inclusion Commission TACs & Quotas proposals November
- Adoption Fisheries Council December

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