

# Støðan, útlit og umsiting av makreli, sild og svartkjafti

Jan Arge Jacobsen



**HAVSTOVAN**  
FAROE MARINE RESEARCH INSTITUTE

# Burðardygd og umsitingarætlan

# Burðardygd – Sustainability

- Precautionary Approach (PA) ella burðardygg umsiting
  - at tryggja at gýtingarstovnurin ikki verður niðurfiskaður

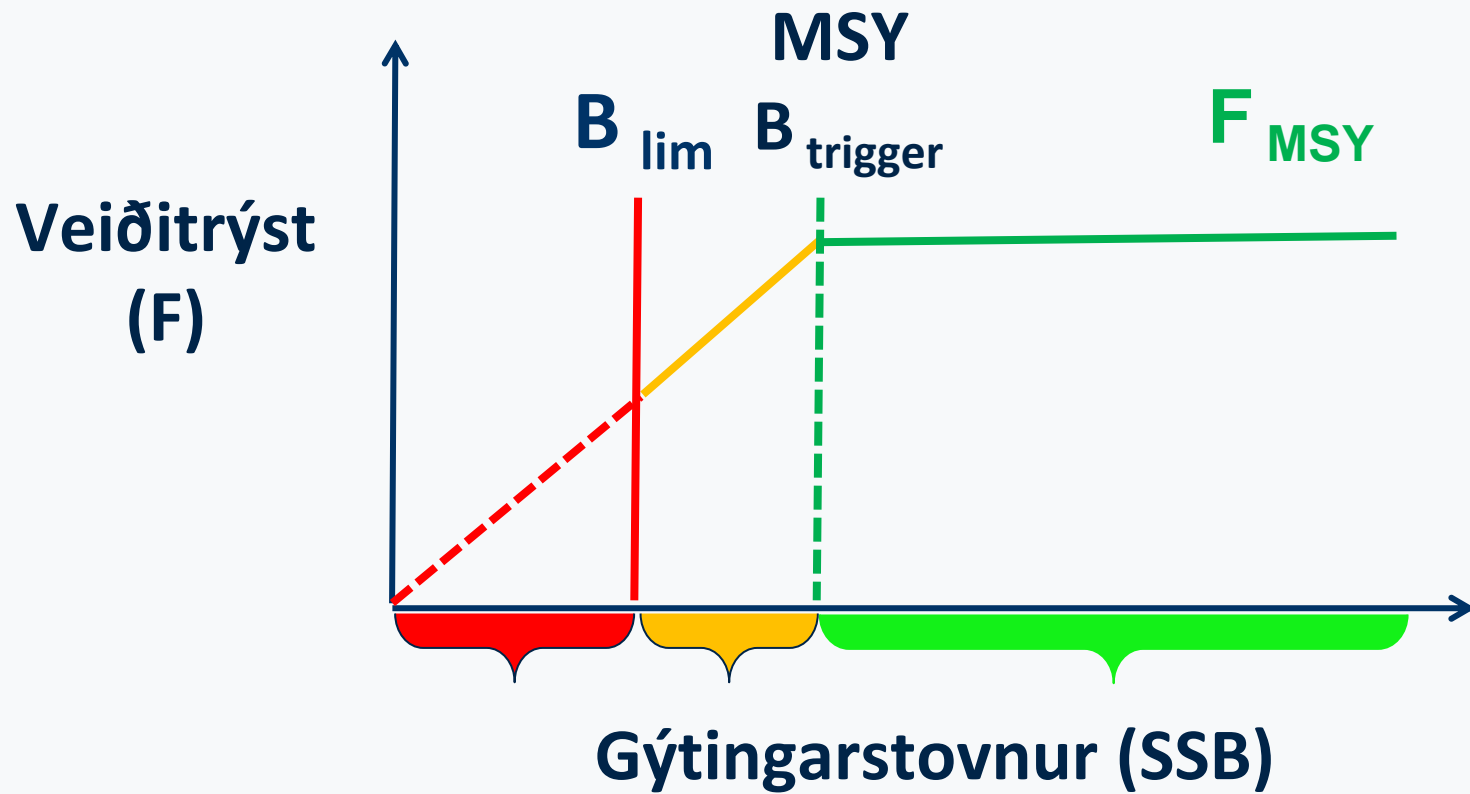
# Burðardygd – Sustainability

- Precautionary Approach (PA) ella burðardygg umsiting
  - at tryggja at gýtingarstovnurin ikki verður niðurfiskaður
- MSY approach (Maximum Sustainable Yield)
  - at fáa sum mest burturúr fiskastovninum í longdini og samstundis tryggja stovnin

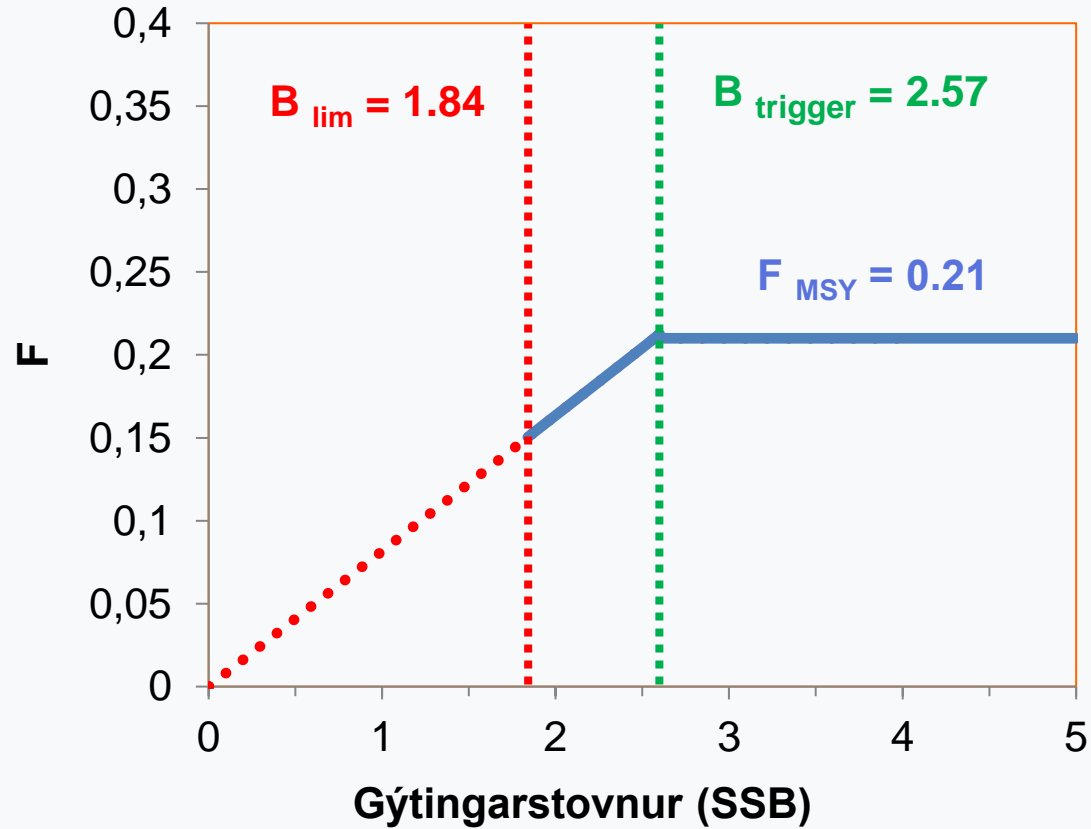
# ICES MSY approach

- Finna parametrarnar  $F_{\text{target}}$  og  $B_{\text{trigger}}$  sum tryggja stovnin, soleiðis at sannlíkindini at gýtingarstovnurin gerst minni enn eitt ávíst ( $B_{\text{lim}}$ ) er  $< 5\%$
- og samstundis at fáa sum mest burturúr stovninum í longdini

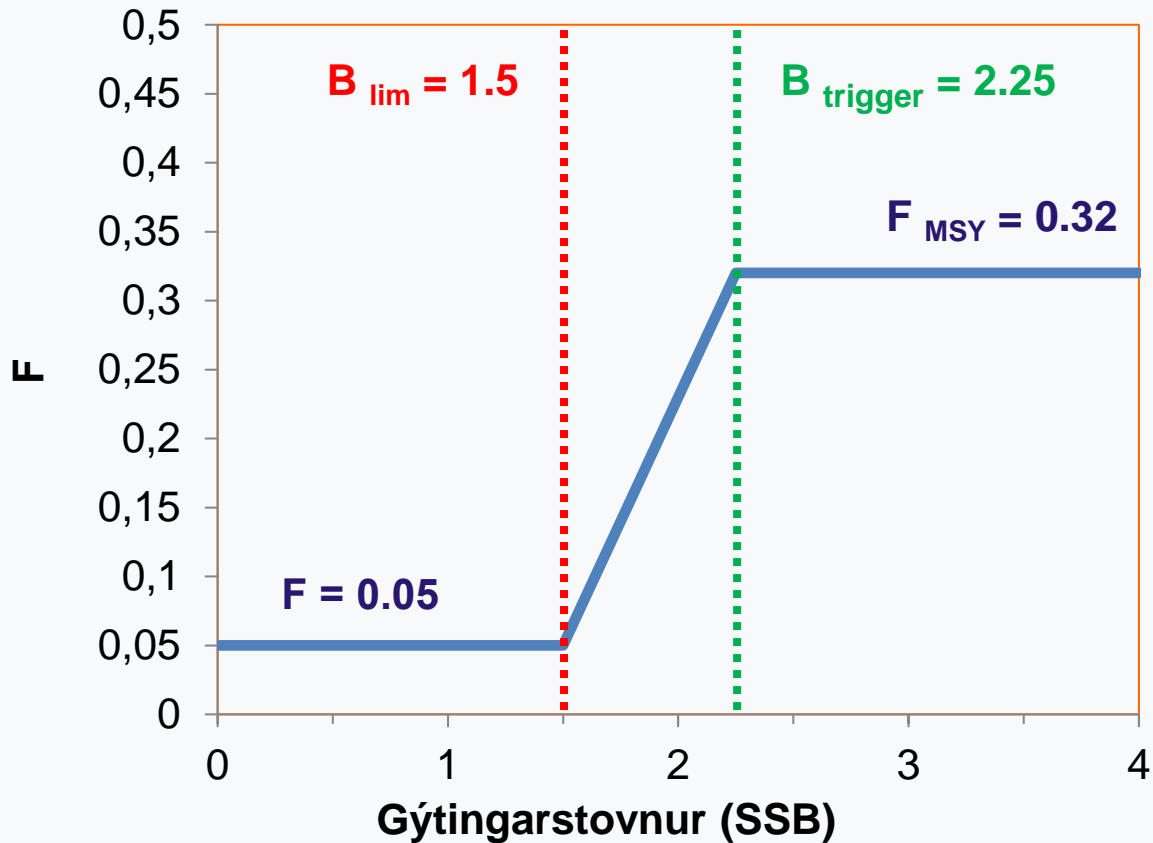
# Biomass reference points – Tilvísingarvirðir



# Umsitingarættlan fyri makrel (frá 2017)



# Umsitingarættlan fyri svartkjaft (frá 2016)



$$\text{Target } F = 0.05 + [(SSB - B_{lim}) * (F_{MSY} - 0.05) / (B_{trigger} - B_{lim})]$$



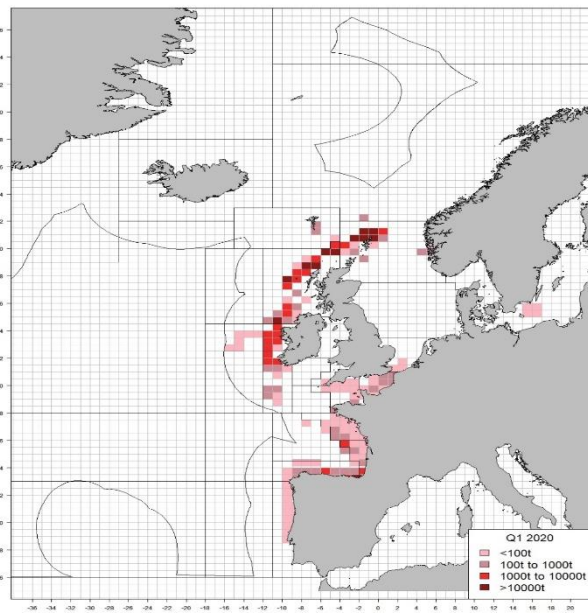
# Hví er tað snilt við eini umsitingarætlan?

- 1) um ICES hevur mett hana burðardyggja, kann hon brúkast av strandarlondunum
  - 2) tá stovnsmetingin er liðug og støddin á gýtingarstovninum er funnin, kann  $F_{\text{target}}$  roknast út
  - 3) tá  $F_{\text{target}}$  er funnið kann mest loyvda veiðan (MLV ella TAC) roknast út
- og so er sloppið 😊 og tó ...

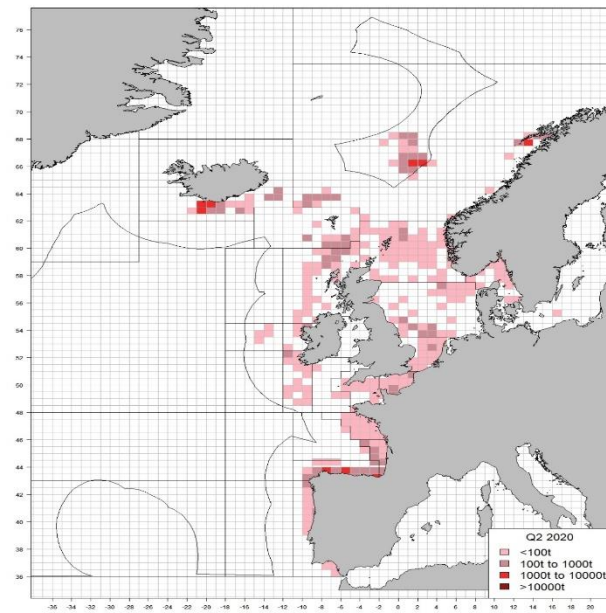


# Veiða av makreli 2020: 1.04 mill t

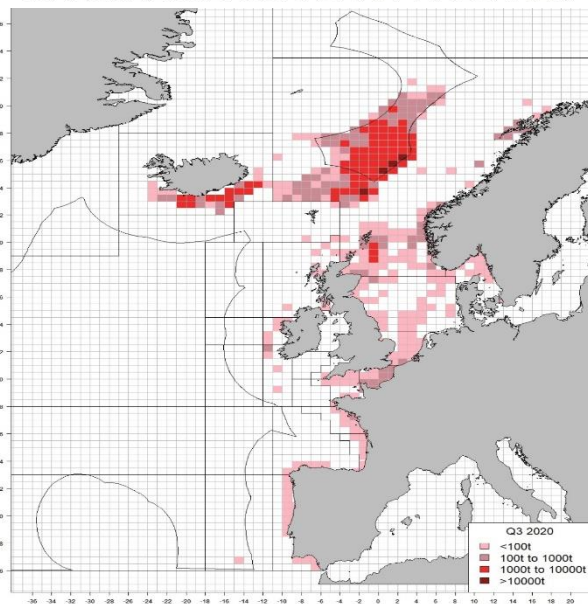
Q1



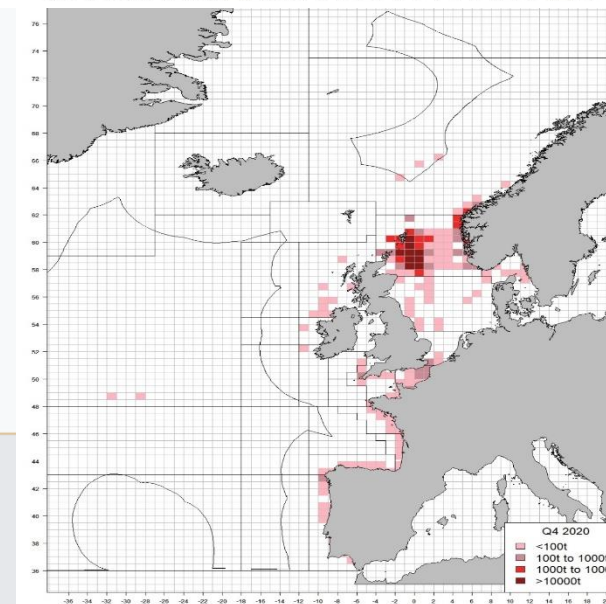
Q2



Q3

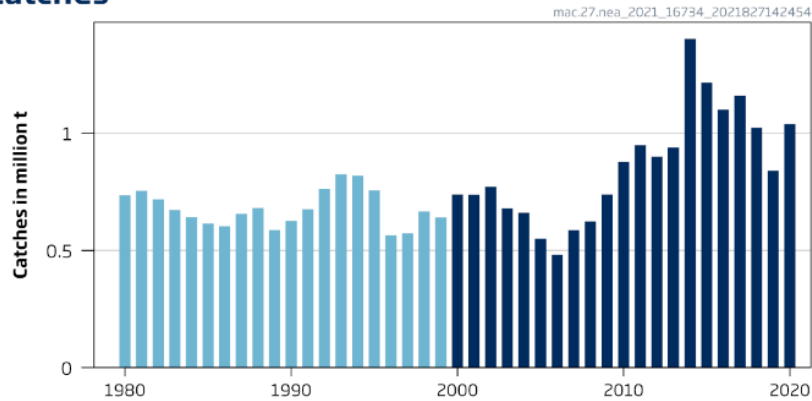


Q4

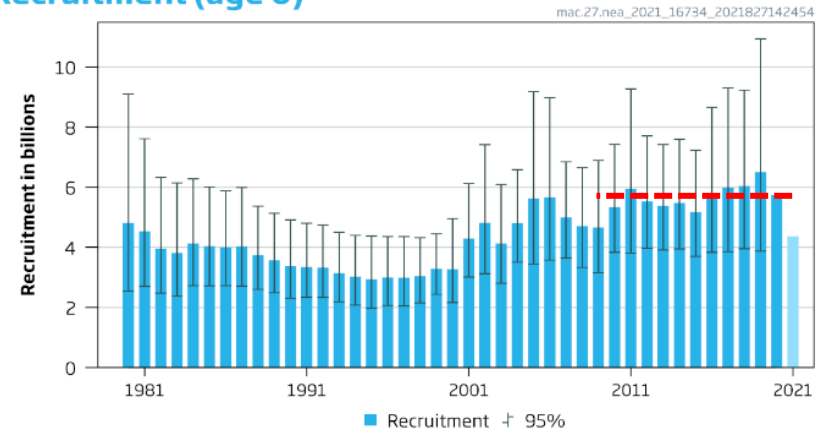


# Makrelur, stovnsmetingar í 2021

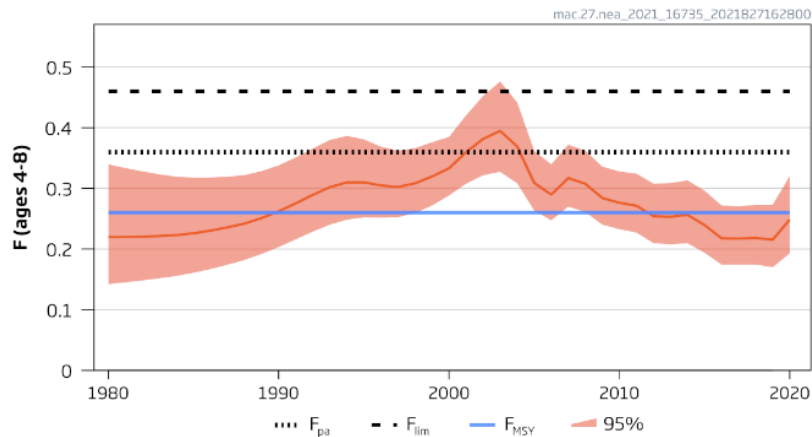
## Catches



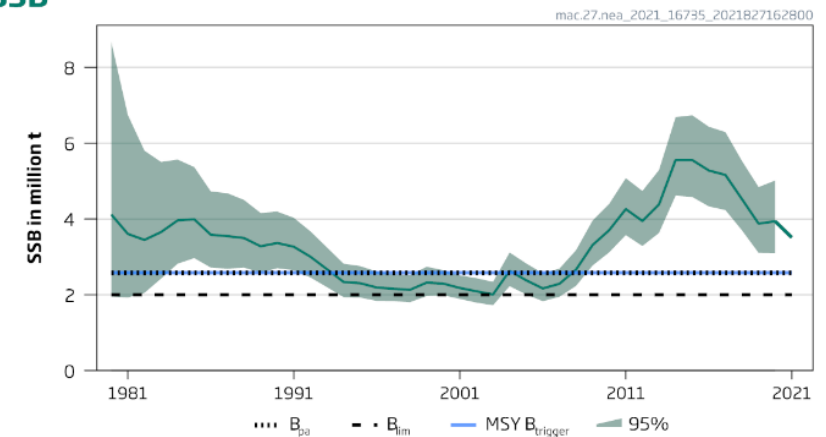
## Recruitment (age 0)



## F



## SSB



# Makrelur, tilmælið og útlit fyri 2022

Basis:  $F(2021) = 0.352$ ; Catches (2021) = 1.199 mill t;  $SSB(2021) = 3.5$  mill t

Basis	Total catch	$F_{\text{ages 4-8}}$	SSB at spawning time		% change		
	2022	2022–2023	2022	2023	SSB*	Catch**	Advice***
ICES advice basis							
MSY approach: $F = F_{\text{MSY}}$	794920	0.26	3307739	3269273	-1%	-34%	-7%
Other scenarios							
Catch (2022) = zero	0	0	3479949	4056937	17%	-100%	-100%
Catch (2022) = 2021 catch -20%	959282	0.32	3268490	3113212	-5%	-20%	13%
Catch (2022) = 2021 catch	1199103	0.42	3208545	2889918	-10%	0%	41%
Catch (2022) = 2021 catch +25%	1498879	0.55	3128589	2618418	-16%	25%	76%
$F_{\text{bar}}(2022) = F_{\text{bar}}(2021)$	1041030	0.35	3248428	3036502	-7%	-13%	22%
$F_{\text{bar}}(2022) = 0.36 (F_{\text{pa}})$	1057002	0.36	3244464	3021586	-7%	-12%	24%
$F_{\text{bar}}(2022) = 0.46 (F_{\text{lim}})$	1298209	0.46	3182766	2799209	-12%	8%	52%
$SSB(2023) = B_{\text{lim}}$	2220349	0.94	2907210	2001890	-31%	85%	161%
$SSB(2023) = B_{\text{pa}}$	1541696	0.57	3116665	2580350	-17%	29%	81%

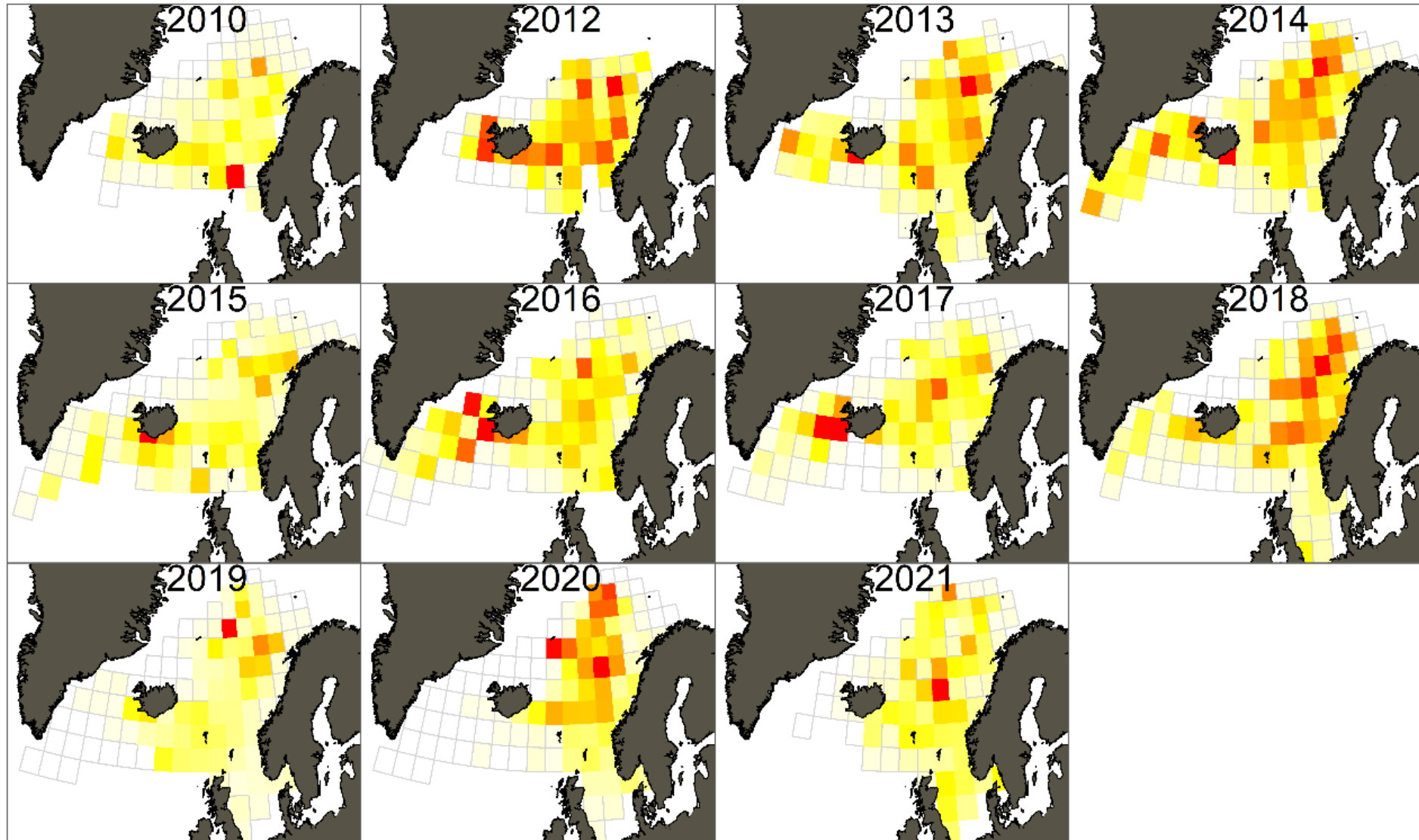
$C_{2022} \approx 1.1$  mill t (40% ovveiða)

\* SSB 2023 relative to SSB 2022

\*\* Catch in 2022 relative to estimated catches in 2021 (1 199 103 tonnes). There is no internationally agreed TAC for 2021

\*\*\* Advice value for 2022 relative to the advice value for 2021 (852 284 tonnes)

# Yvirlitstrolingar makrelur 2010, 2012-2021

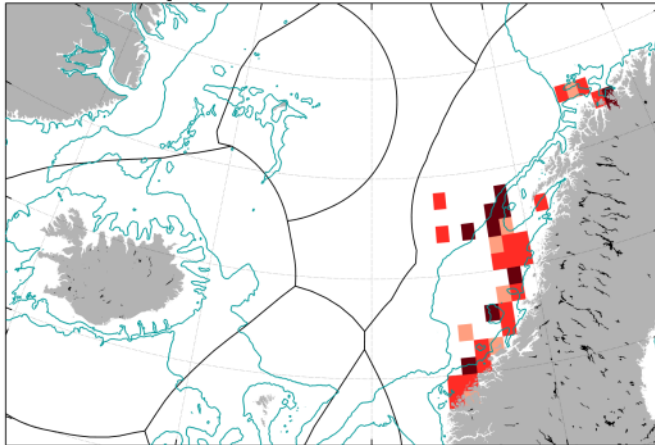




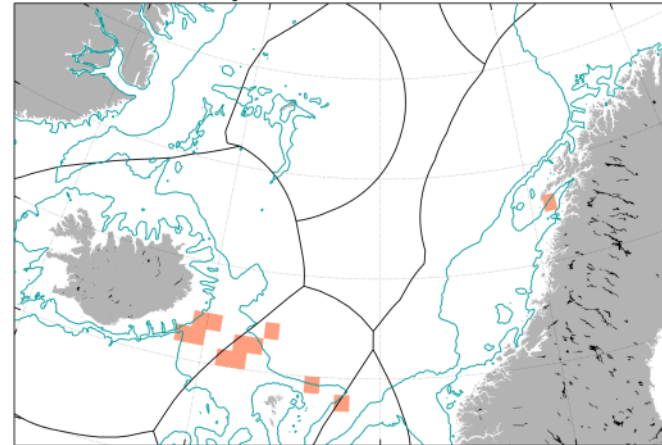


# Veiða av norðhavssild 2020 pr. kvartal

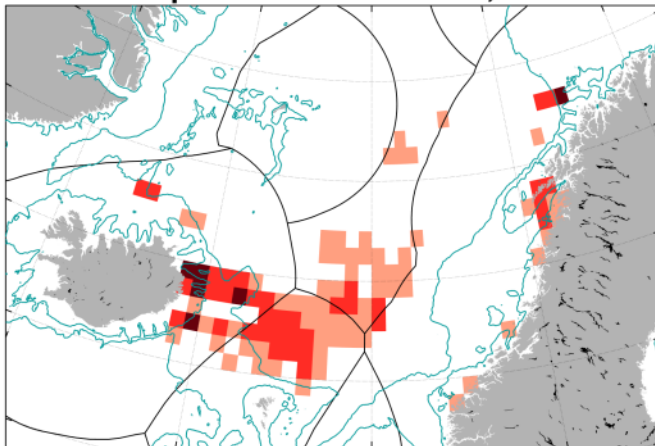
First quarter 183479 tonnes, 25.6%



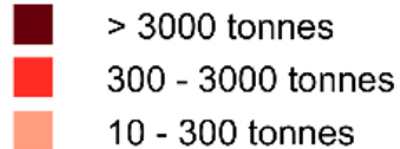
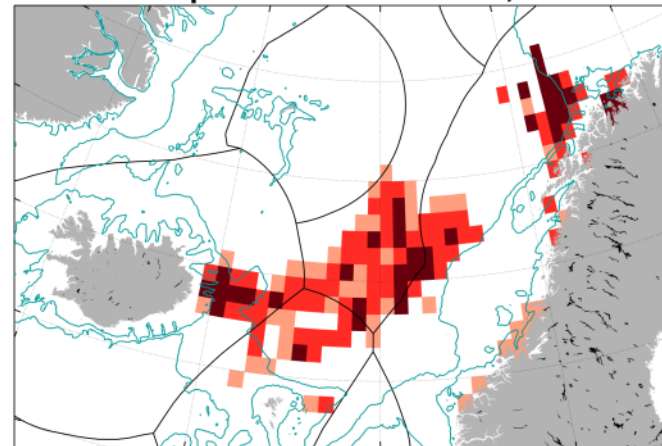
Second quarter 762 tonnes, 0.1%



Third quarter 105650 tonnes, 14.8%



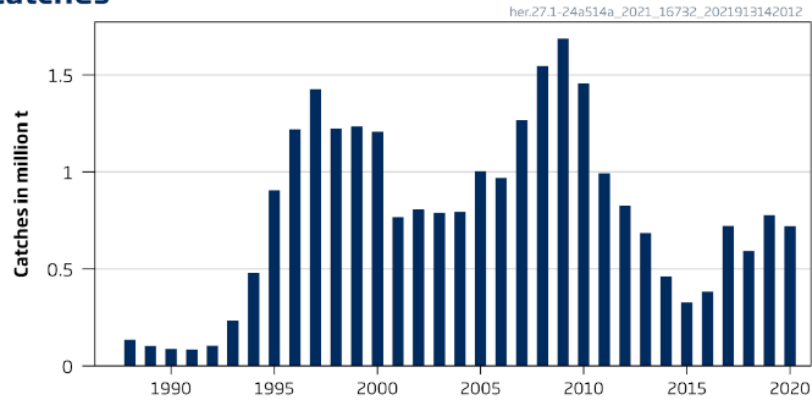
Fourth quarter 425539 tonnes, 59.5%



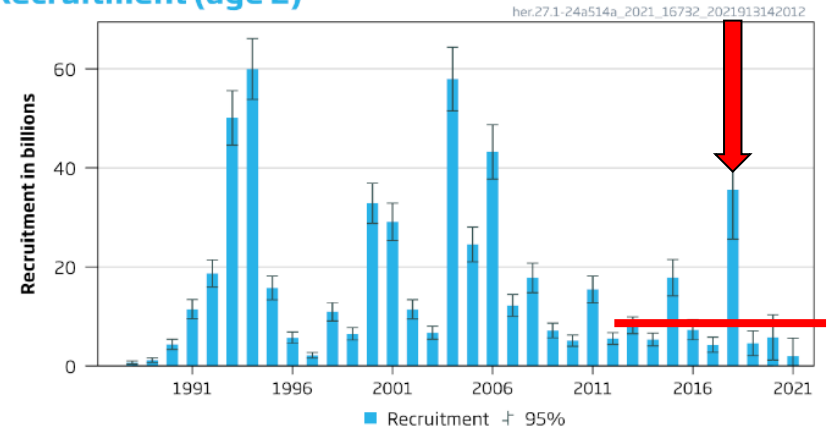


# Norðhavssild, stovnsmetingar í 2021

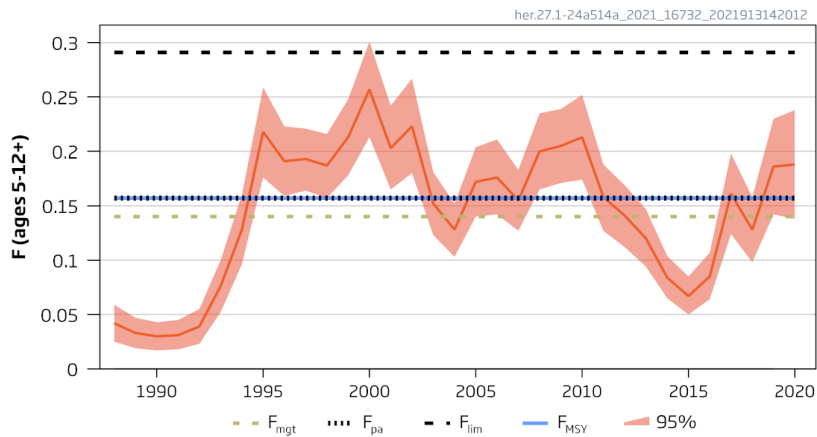
Catches



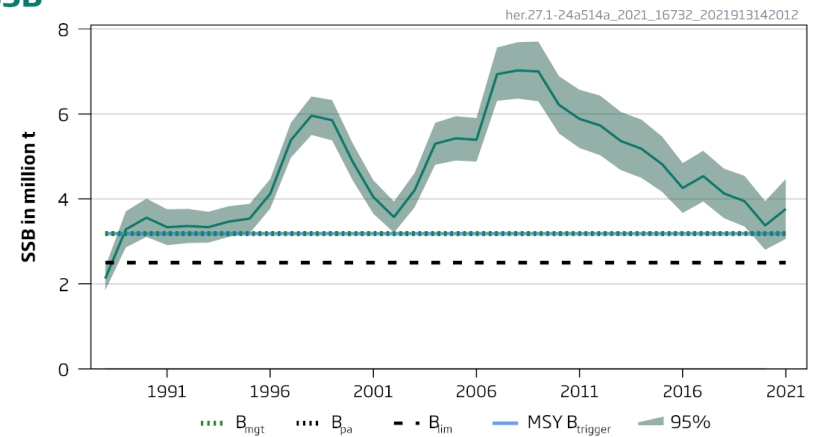
Recruitment (age 2)



F



SSB



# Norðhavssild, tilmælið og útlit fyri 2022

Basis:  $F_w(2021) = 0.174$ ;  $SSB(2022) = 3,9$  mill t;  $Catches(2021) = 881\ 097$  t

Basis	Total catch (2022)	F (2022)	SSB (2023)	% SSB change *	% Catch change **	% Advice change ***
ICES advice basis						
Agreed management strategy ^	598588	0.14	3607952	-8.0	-32	-8.0
Other scenarios						
MSY approach: $F_{MSY}$	665436	0.157	3549887	-9.4	-24	2.2
$F = 0$	0	0	4129529	5.4	-100	-100
$F_{pa}$	665436	0.157	3549887	-9.4	-24	2.2
$F_{lim}$	1152881	0.291	3127774	-20	31	77
$SSB_{2023} = B_{lim}$	1883778	0.534	2500041	-36	114	189
$SSB_{2023} = B_{pa} = MSY_{Btrigger}$	1087697	0.272	3184080	-18.8	23	67
$F = F_{2021}$	729494	0.174	3494282	-10.9	-17.2	12.1

$C_{2022} \approx 810\ 000$  t (35% ovveiða)

\*  $SSB_{2023}$  relative to  $SSB_{2022}$

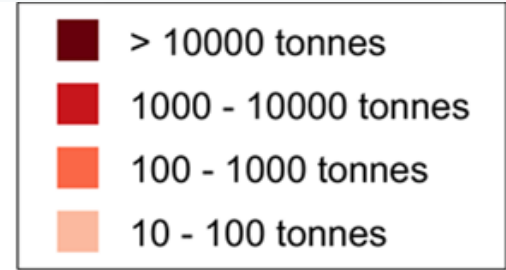
\*\* Catch in 2022 relative to ICES estimated catch in 2021 (881 097 tonnes)

\*\*\* Advice value 2022 relative to advice value 2021 (651 033 tonnes)

^ According to the harvest control rule in the management strategy  $F(2022) = F_{mgt} = 0.14$ , since the  $SSB$  forecasted is above  $B$  trigger on 1 Jan 2022.



# Svartkjaftur pr. kvartal 2020

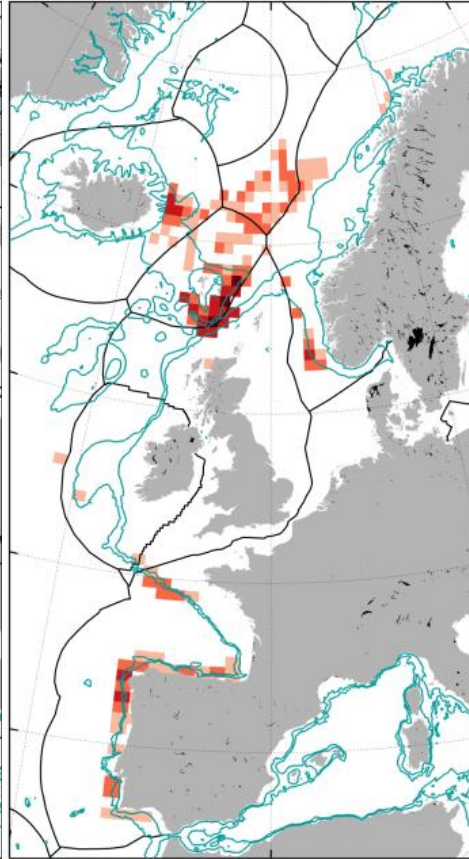
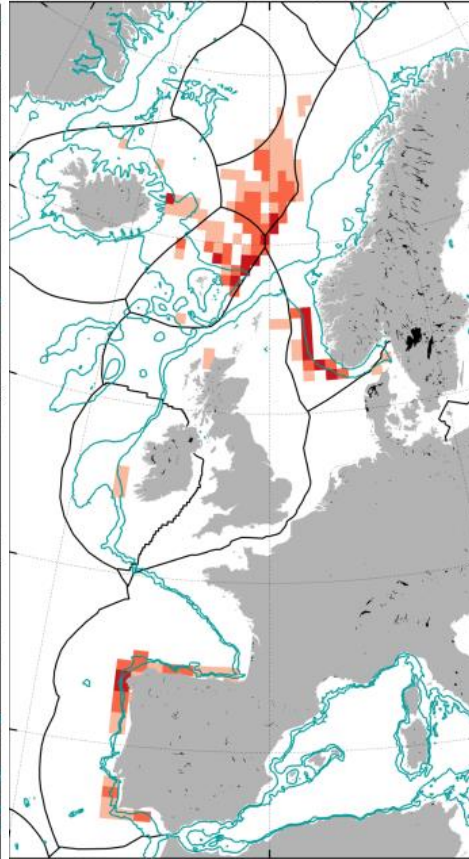
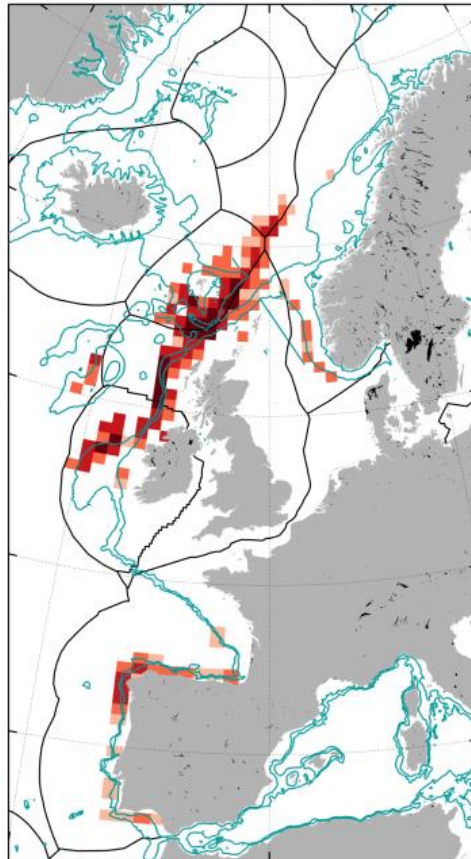
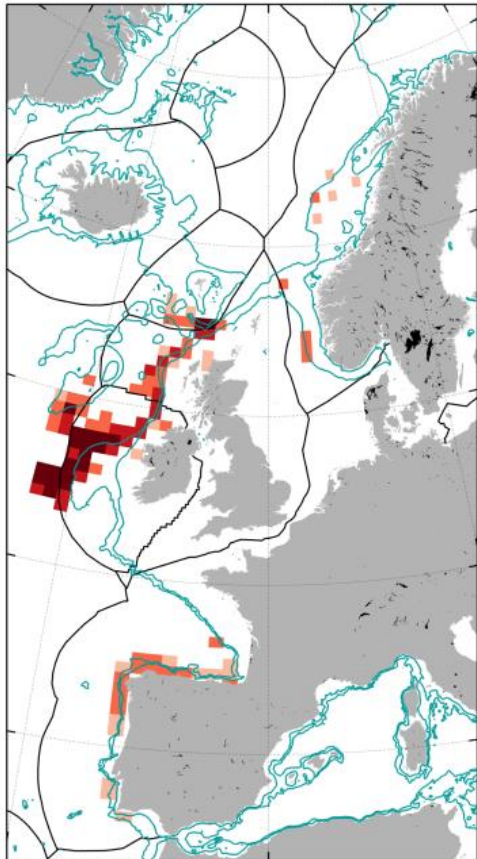


606432 tonnes, 41%

658073 tonnes, 44.5%

52685 tonnes, 3.6%

161206 tonnes, 10.9%



Q1

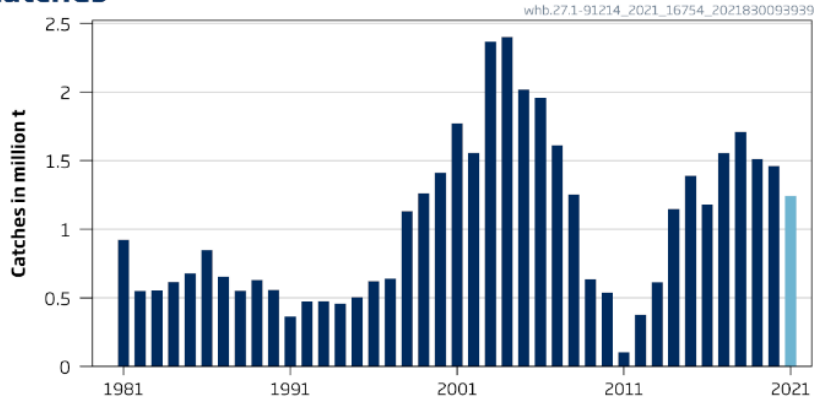
Q2

Q3

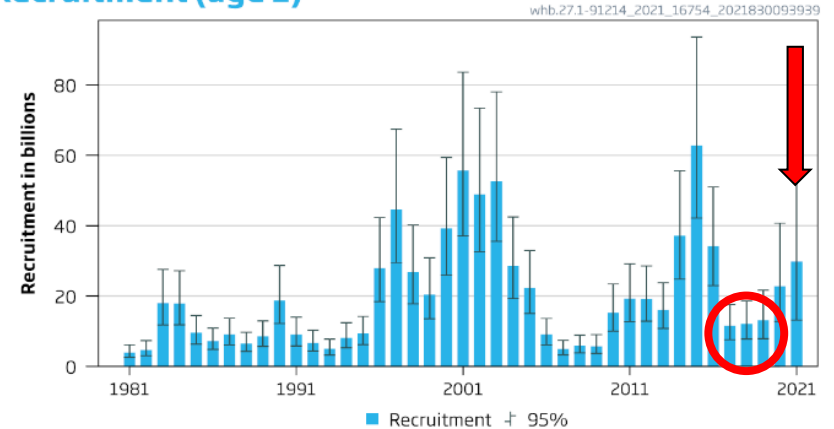
Q4

# Svartkjaftur, stovnsmetingar í 2021

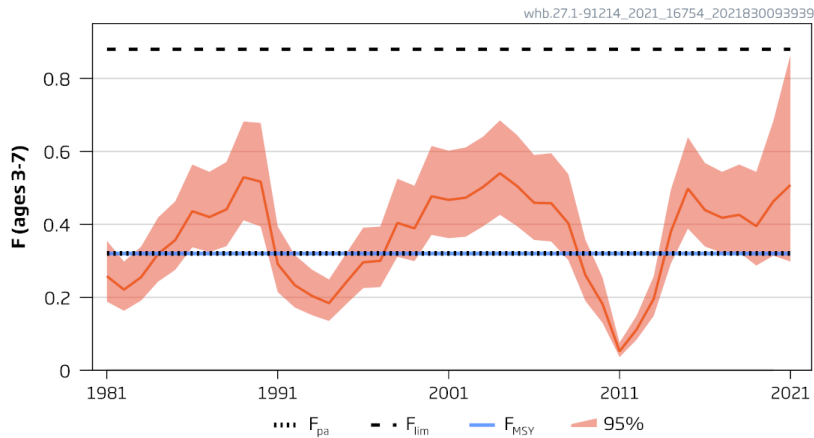
Catches



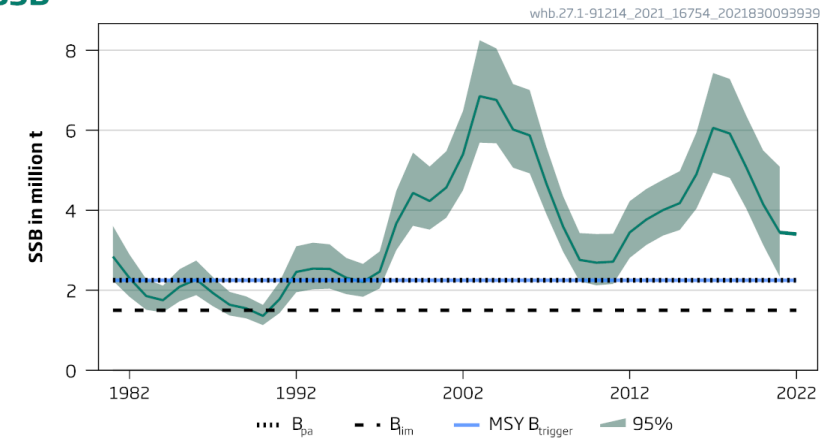
Recruitment (age 1)



F



SSB



# Svartkjaftur, tilmælið og útlit fyri 2022

Basis:  $F(2021) = 0.51$ ;  $Catch(2021) = 1.24$  mill t;  $SSB(2022) = 3.4$  mill t

Basis	Total catch (2022)	F (2022)	SSB (2023)	% SSB change *	% catch change **	% advice change ***
ICES advice basis						
Long-term management strategy $F = F_{MSY}$	752736	0.32	4052163	19.1	-39.4	-19.0
Other scenarios						
MSY approach: $F_{MSY}$	752736	0.32	4052163	19.1	-39.4	-19.0
$F = 0$	0	0	4738902	39.2	-100	-100
$F_{pa}$	752736	0.32	4052163	19.1	-39.4	-19.0
$F_{lim}$	1695700	0.88	3214818	-5.5	36.4	82.5
$SSB_{2023} = B_{lim}$	3797974	3.93	1500000	-55.9	205.6	308.7
$SSB_{2023} = B_{pa}$	2838799	2.03	2250000	-33.9	128.4	205.5
$SSB_{2023} = MSY B_{trigger}$	2838799	2.03	2250000	-33.9	128.4	205.5
$F = F_{2021}$	1113313	0.51	3728501	9.5	-10.4	19.8
$SSB_{2023} = SSB_{2022}$	1479984	0.73	3403629	0	19.1	59.3
$Catch_{2022} = Catch_{2021}$	1242727	0.58	3613292	6.2	0	33.7
$Catch_{2022} = Catch_{2021} -20\%$	994181	0.44	3834987	12.7	-20	7.0
$Catch_{2022} = Catch_{2021} +25\%$	1553409	0.78	3339158	-1.9	25	67.2
$Catch_{2022} = Advice_{2021} -20\%$	743434	0.32	4060575	19.3	-40.2	-20

$C_{2022} \approx 1$  mill t (34% ovveiða)

\* SSB 2023 relative to SSB 2022.

\*\* Catch 2022 relative to expected catch in 2021 (1 242 727 tonnes).

\*\*\* Catch 2022 relative to advice for 2021 (929 292 tonnes)

# Tilmæli og kvotur í 2021 og 2022

	Tilmælið 2021	Mett veiða 2021 (ovveiða)	FO kvota 2021	FO partur av TAC	Tilmælið 2022	Broyting í 2022
Makrelur	852	1 199 (41%)	167	19,60 %	795	-7 %
Svartkjaftur	929	1 243 (34%)	330	35,53 %	753	-19 %
Norðhavssild	651	881 (35%)	144	22,05 %	599	-8 %

*-engin semja um býti*

Ár	<96	97	98	99	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Sild								NO	NO	NO	NO							FO	FO	FO	NO/F O	NO/F O	NO/F O	NO/F O	NO/F O			
Makrelur	FO	FO	FO	FO											FO	FO	FO	FO	IS/GR	IS/GR	IS/GR	IS/GR	IS/GR	IS/GR	IS/GR	IS/GR		
Svartkjaftur																					EU/FO	EU/FO	EU/FO	EU/FO	EU/FO	EU/FO		

*(í 1000 tonsum)*

