GMT recommendations for 2021-22 harvest specifications

Shortbelly: GMT does not recommend No Action

Alt.	Description	GMT:
No Action	500 mt ACL	Likely to constrain fisheries
Alt. 1	3,000 mt ACL	Extra cushion for fisheries Stock thriving - supports robust forage base
Alt. 2	EC species	ACLs more incentive to reduce bycatch EC species not actively managed
Oceana	Prohibits directed fisheries in FMP	Industry states won't ever target them Defining "targeting" could require work

Oregon black rockfish: GMT recommends Alt 1

Alt.	Description
No Action	**ACL = ABC P*0.45** ● 512 mt ABC in 2020 ● 479 mt in 2021 ● 474 mt in 2021
Alt. 1	**Case-by-case ABC** ● Stay at 512 mt for 2021-22 ● Revert to using P* in 2023+

Rationale for Alt 1

- **Similar long-term results for both:**
  - ABCs
  - Spawning output
  - Depletion

- **Both stay above 54% depletion long-term**

- **Alt 1 provides short-term benefit**
  - More time to incorporate survey into new assessment
  - Stabilizes fisheries

Oregon black rockfish: GMT recommends Alt 1

No Action: P*0.45

Year	OFL	ABC	Spawning Output (B eggs)	Depletion
2021	570	479	727	55%
2022	569	474	721	55%
2023	569	470	718	54%
2024	569	466	715	54%
2025	570	461	714	54%
2026	570	458	713	54%
2027	571	454	713	54%
2028	571	450	713	54%
2029	572	446	714	54%
2030	573	443	715	54%

Alt 1: Case-by-case

Year	OFL	ABC	Spawning Output (B eggs)	Depletion
2021	570	**512**	727	55%
2022	566	**512**	719	55%
2023	563	465	712	54%
2024	564	462	709	54%
2025	566	458	707	54%
2026	567	455	707	54%
2027	568	452	707	54%
2028	570	449	708	54%
2029	571	445	710	54%
2030	572	442	712	54%

Cowcod: GMT recommends Alt 1

Alt.	Description
No Action	ACL = ABC P*0.4 (98 mt in 2021)
Alt. 1	ACL = ABC P*0.40 (87 mt in 2021)
Alt. 2	ACL = ABC P*0.35 (52 mt in 2021)

- **Stock rebuilt and higher ACLs**
  - 2019: 10 mt ACL and 6 mt ACT

- **Recommend precaution due to assessment uncertainty**

- **Suggest using a 40-60 mt ACT:**
  - Keeps stock above 40%
  - Even under low state of nature

- **Alt 1 can maintain that ACT long-term**

Petrale sole: GMT recommends Alt 1 or 2

Alt.	Description
No Action	ACL = ABC P*0.45
Alt. 1	ACL = ABC P*0.40
Alt. 2	**"Stair-step ACLs"** (new approach for higher short-term and consistent ACLs)

Rationale against No Action

- **Precaution warranted**
  - The 2018 survey biomass estimate was down and not fit by the model
  - New fecundity data will lead to slightly more depleted stock

- **Both Alt. 1 & 2 more precautionary**

Petrale sole: GMT recommends Alt 1 or 2
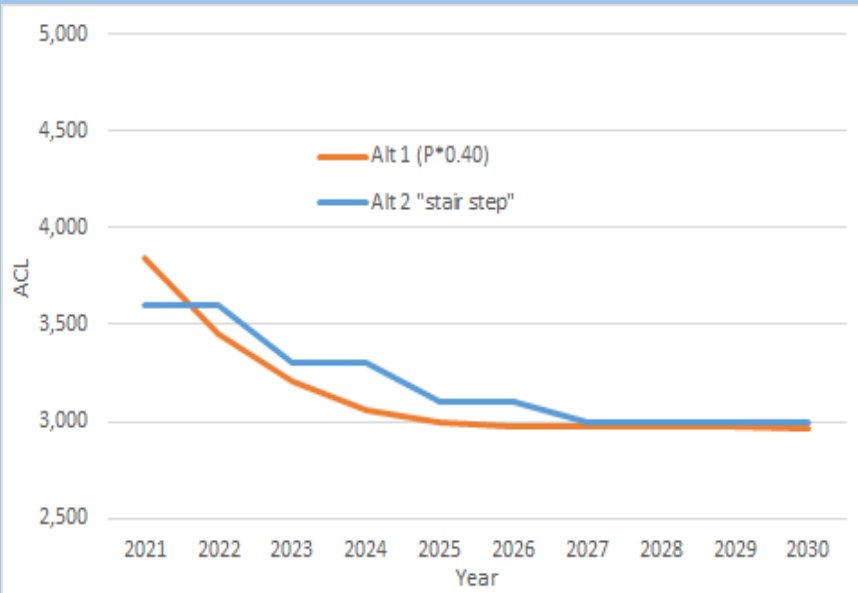
- **Petrale sole well above target = temporary surplus of "fishing down"**

- **Both have similar long-term biological and economic impacts**

- **When prefer the temporary surplus?**
  - Alt. 1: more early
  - Alt. 2: more spread-out

Sablefish: GMT recommends Alt. 1

Alt.	Description
No Action	ACL = ABC P*0.40
Alt. 1	ACL = ABC P*0.45

Yearly economic benefits of Alt. 1

- **+$2.1 million ex-vessel**
- **+4.4 million income**
- **+60 jobs**

Similar base-case biological impacts:

- **No longer in precautionary zone**
- **Projected to remain above 44% long-term for both Alts**

Sablefish: risks with higher catches
if the low state of nature is the true state?

- Scale was main source of uncertainty
- **Ranges based on two sets of decision tables**
  - "Full" and "reduced" catch scenarios

Similar long-term

biological impacts:

P*0.45: stays above 34-38%

P*0.40: stays above 36-41%

Both stay near the 40% target
- Higher end of precautionary zone
- But 40% target precautionary to MSY
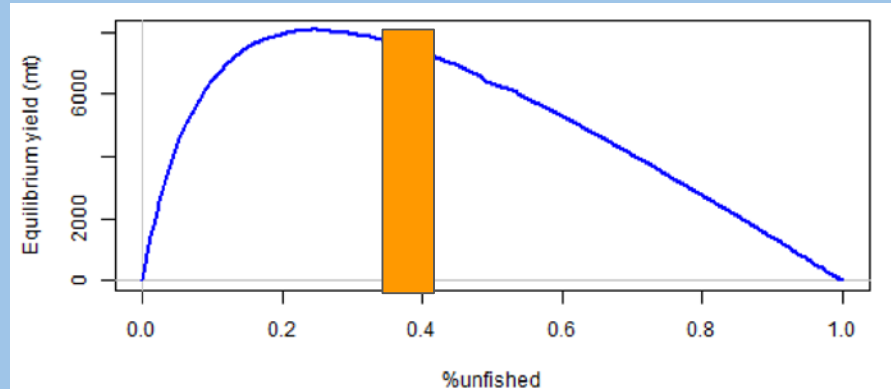
New lingcod North of 42° projections

- **No alternatives proposed**
- **But Council concerns over "fishing down" at ABC**
  - Declines from 5,000 mt to 3,500 mt
- **But what are impacts under a "realistic" catch scenario?**
- **Well above target, even under low state of nature**

"Realistic catch scenario"

$y = 59.704x - 119527$
$R^2 = 0.8327$

- Actual
- Projected
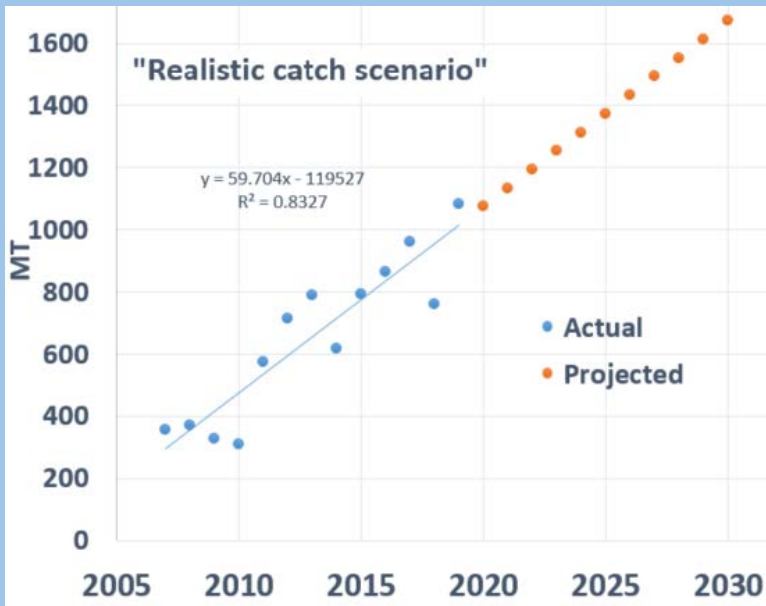
Year	Catch	Low state		Base case	
		S. Bio	Depletion	S. Bio	Depletion
2021	1,135	18,023	61%	25,204	66%
2022	1,194	18,473	63%	25,861	68%
2023	1,254	18,856	64%	26,422	70%
2024	1,314	19,171	65%	26,889	71%
2025	1,374	19,417	66%	27,268	72%
2026	1,433	19,598	67%	27,563	73%
2027	1,493	19,718	67%	27,780	73%
2028	1,553	19,782	67%	27,930	74%
2029	1,612	19,797	67%	28,017	74%
2030	1,672	19,766	67%	28,048	74%

Final GMT Recommendations

- **Something other than No Action: Shortbelly rockfish**

- **Alt. 1: Oregon black rockfish (case-by-case ABC)**

- **Alt. 1: Cowcod (P*0.40)**

- **Something other than No Action: Petrale sole**

- **Alt. 1: Sablefish (P*0.45)**

Back-up slides:

			State of nature					
			Low		Base case		High	
			M=0.055, L$_{50\%}$=35 cm		M=0.088, L$_{50\%}$=45.6 cm		M=0.098, L$_{50\%}$=55cm	
Management decision	Year	Catch	Spawning Output	Depletion	Spawning Output	Depletion	Spawning Output	Depletion
Low Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	45.7	330	38.1%	343	60.3%	434	77.8%
	2022	45.8	335	38.6%	346	60.7%	434	77.8%
	2023	45.9	339	39.1%	348	61.1%	434	77.7%
	2024	45.9	343	39.6%	350	61.4%	433	77.6%
	2025	45.9	347	40.0%	351	61.7%	432	77.4%
	2026	45.8	351	40.5%	353	61.9%	431	77.2%
	2027	45.7	354	40.9%	354	62.1%	429	77.0%
	2028	45.5	358	41.2%	355	62.3%	428	76.7%
	2029	45.4	361	41.6%	355	62.5%	427	76.5%
	2030	45.3	364	42.0%	356	62.6%	425	76.2%
Base Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	83.2	330	38.1%	343	60.3%	434	77.8%
	2022	81.5	329	38.0%	340	59.7%	429	76.9%
	2023	79.9	328	37.8%	337	59.2%	423	75.9%
	2024	78.4	326	37.6%	334	58.7%	418	74.9%
	2025	76.9	324	37.3%	331	58.1%	412	73.9%
	2026	75.5	321	37.0%	328	57.6%	407	72.9%
	2027	74.3	318	36.7%	325	57.1%	401	71.9%
	2028	73.1	315	36.3%	323	56.7%	396	71.0%
	2029	71.9	312	36.0%	321	56.3%	391	70.1%
	2030	70.9	309	35.6%	319	56.0%	386	69.2%
High Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	128.4	330	38.1%	343	60.3%	434	77.8%
	2022	123.5	322	37.2%	334	58.7%	422	75.6%
	2023	119.0	314	36.2%	325	57.1%	410	73.5%
	2024	114.9	306	35.2%	316	55.5%	399	71.6%
	2025	111.0	297	34.2%	307	54.0%	389	69.8%
	2026	107.5	288	33.2%	299	52.5%	380	68.1%
	2027	104.3	279	32.1%	291	51.1%	372	66.6%
	2028	101.3	270	31.1%	283	49.7%	364	65.3%
	2029	98.5	261	30.1%	276	48.5%	357	64.1%
	2030	96.0	252	29.1%	269	47.3%	351	63.0%

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Management decision	Year	Catch	State of nature					
			Low M=0.055, $L_{50\%}$=35 cm		Base case M=0.088, $L_{50\%}$=45.6 cm		High M=0.098, $L_{50\%}$=55cm	
			Spawning Output	Depletion	Spawning Output	Depletion	Spawning Output	Depletion
Low Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	45.7	330	38.1%	343	60.3%	434	77.8%
	2022	45.8	335	38.6%	346	60.7%	434	77.8%
	2023	45.9	339	39.1%	348	61.1%	434	77.7%
	2024	45.9	343	39.6%	350	61.4%	433	77.6%
	2025	45.9	347	40.0%	351	61.7%	432	77.4%
	2026	45.8	351	40.5%	353	61.9%	431	77.2%
	2027	45.7	354	40.9%	354	62.1%	429	77.0%
	2028	45.5	358	41.2%	355	62.3%	428	76.7%
	2029	45.4	361	41.6%	355	62.5%	427	76.5%
	2030	45.3	364	42.0%	356	62.6%	425	76.2%
Base Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	83.2	330	38.1%	343	60.3%	434	77.8%
	2022	81.5	329	38.0%	340	59.7%	429	76.9%
	2023	79.9	328	37.8%	337	59.2%	423	75.9%
	2024	78.4	326	37.6%	334	58.7%	418	74.9%
	2025	76.9	324	37.3%	331	58.1%	412	73.9%
	2026	75.5	321	37.0%	328	57.6%	407	72.9%
	2027	74.3	318	36.7%	325	57.1%	401	71.9%
	2028	73.1	315	36.3%	323	56.7%	396	71.0%
	2029	71.9	312	36.0%	321	56.3%	391	70.1%
	2030	70.9	309	35.6%	319	56.0%	386	69.2%
High Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	128.4	330	38.1%	343	60.3%	434	77.8%
	2022	123.5	322	37.2%	334	58.7%	422	75.6%
	2023	119.0	314	36.2%	325	57.1%	410	73.5%
	2024	114.9	306	35.2%	316	55.5%	399	71.6%
	2025	111.0	297	34.2%	307	54.0%	389	69.8%
	2026	107.5	288	33.2%	299	52.5%	380	68.1%
	2027	104.3	279	32.1%	291	51.1%	372	66.6%
	2028	101.3	270	31.1%	283	49.7%	364	65.3%
	2029	98.5	261	30.1%	276	48.5%	357	64.1%
	2030	96.0	252	29.1%	269	47.3%	351	63.0%

- GMT recommendation since keeps ABC above the ACT long-term

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Cowcod P*0.30

Management decision	Year	Catch	Low M=0.055, L$_{50\%}$=35 cm Spawning Output	Depletion	Base case M=0.088, L$_{50\%}$=45.6 cm Spawning Output	Depletion	High M=0.098, L$_{50\%}$=55cm Spawning Output	Depletion
			State of nature					
Low Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	29.8	330	38.1%	343	60.3%	434	77.8%
	2022	29.3	337	38.9%	348	61.1%	436	78.2%
	2023	28.8	344	39.7%	352	61.9%	438	78.6%
	2024	28.2	351	40.5%	357	62.7%	440	78.9%
	2025	27.5	358	41.3%	361	63.4%	441	79.1%
	2026	26.8	365	42.1%	365	64.2%	443	79.4%
	2027	26.1	372	42.9%	369	64.8%	444	79.6%
	2028	25.5	379	43.6%	373	65.5%	446	79.9%
	2029	24.9	385	44.4%	377	66.2%	447	80.1%
	2030	24.2	392	45.2%	380	66.8%	448	80.3%
Base Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	54.5	330	38.1%	343	60.3%	434	77.8%
	2022	52.4	334	38.5%	344	60.5%	433	77.6%
	2023	50.5	337	38.8%	345	60.7%	431	77.3%
	2024	48.7	340	39.2%	347	60.9%	430	77.1%
	2025	46.9	343	39.5%	348	61.1%	429	76.8%
	2026	45.2	346	39.9%	349	61.4%	427	76.6%
	2027	43.6	349	40.2%	351	61.7%	426	76.4%
	2028	42.1	351	40.5%	353	62.0%	425	76.2%
	2029	40.7	354	40.8%	355	62.3%	424	76.1%
	2030	39.3	357	41.2%	357	62.7%	424	75.9%
High Catch	2019	3.1	308	35.5%	325	57.1%	422	75.6%
	2020	3.1	319	36.8%	334	58.7%	428	76.7%
	2021	84.2	330	38.1%	343	60.3%	434	77.8%
	2022	79.9	329	38.0%	340	59.8%	428	76.8%
	2023	75.9	328	37.8%	337	59.3%	423	75.8%
	2024	72.2	327	37.7%	335	58.8%	418	74.9%
	2025	68.7	325	37.5%	332	58.4%	414	74.2%
	2026	65.5	324	37.4%	330	58.0%	410	73.5%
	2027	62.5	323	37.2%	328	57.7%	407	73.0%
	2028	59.8	322	37.1%	327	57.4%	405	72.5%
	2029	57.2	321	37.0%	326	57.2%	403	72.2%
	2030	54.8	320	36.9%	325	57.1%	401	71.9%

- Closest run to show impacts of a long-term X mt ACT
- ACT would be even more precationary

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Petrale sole P*0.45

				No action: P* of 0.45 (default harvest control rule)								
				Low		Base		High		Economic i	
Year	OFL	ABC	ACL	SSB	Depl.	SSB	Depl.	SSB	Depl.	$ Rev	$ incom
2019	-	2,908	2,908	11,681	28%	13,078	39%	14,524	51%	6.8	16.9
2020	-	2,845	2,845	11,425	27%	12,558	38%	13,729	48%	6.7	16.5
2021	4,402	4,115	4,115	11,110	26%	12,019	36%	12,963	46%	9.7	24.1
2022	3,936	3,660	3,660	10,005	24%	10,799	32%	11,614	41%	8.6	21.4
2023	3,634	3,365	3,365	9,244	22%	10,038	30%	10,820	38%	7.9	19.6
2024	3,470	3,199	3,199	8,773	21%	9,655	29%	10,462	37%	7.5	18.6
2025	3,402	3,120	3,120	8,507	20%	9,523	29%	10,381	36%	7.3	18.2
2026	3,392	3,097	3,097	8,362	20%	9,527	29%	10,434	37%	7.3	18.0
2027	3,406	3,096	3,096	8,276	20%	9,580	29%	10,520	37%	7.3	18.0
2028	3,425	3,097	3,097	8,213	20%	9,635	29%	10,588	37%	7.3	18.0
2029	3,442	3,098	3,098	8,158	19%	9,677	29%	10,624	37%	7.3	18.0
2030	3,452	3,093	3,093	8,103	19%	9,701	29%	10,633	37%	7.3	18.0
Total	35,961	38,693	38,693	NA	NA	NA	NA	NA	NA	91	225

Petrale sole P*0.40

				Low		Base		High		Economic i	
Year	OFL	ABC	ACL	SSB	Depl.	SSB	Depl.	SSB	Depl.	$ Rev	$ incom
2019	-	2,908	2,908	11,681	28%	13,078	39%	14,524	51%	6.8	16.9
2020	-	2,845	2,845	11,425	27%	12,558	38%	13,729	48%	6.7	16.5
2021	4,402	3,843	3,843	11,110	26%	12,019	36%	12,963	46%	9.1	22.5
2022	3,999	3,455	3,455	10,174	24%	10,961	33%	11,772	41%	8.1	20.2
2023	3,741	3,202	3,202	9,540	23%	10,315	31%	11,081	39%	7.5	18.7
2024	3,608	3,060	3,060	9,168	22%	10,012	30%	10,791	38%	7.2	17.8
2025	3,564	2,994	2,994	8,981	21%	9,941	30%	10,755	38%	7.0	17.4
2026	3,573	2,973	2,973	8,906	21%	9,993	30%	10,841	38%	7.0	17.3
2027	3,605	2,971	2,971	8,887	21%	10,091	30%	10,958	38%	7.0	17.3
2028	3,643	2,976	2,976	8,891	21%	10,194	31%	11,058	39%	7.0	17.3
2029	3,676	2,974	2,974	8,900	21%	10,280	31%	11,126	39%	7.0	17.3
2030	3,705	2,968	2,968	8,913	21%	10,351	31%	11,168	39%	7.0	17.3
Total	37,515	37,167	37,167	NA	NA	NA	NA	NA	NA	88	216

Alternative 1: P* of 0.40

Petrale sole "stair-step" ACLs

				Low		Base		High		Economic	
Alternative 2: NEW GMT "stair-step" proposal											
Year	OFL	ABC	ACL	SSB	Depl.	SSB	Depl.	SSB	Depl.	$Rev.	$Incon
2019	-	2,908	2,908	11,681	28%	13,078	39%	14,524	51%	6.8	16.9
2020	-	2,845	2,845	11,425	27%	12,558	38%	13,729	48%	6.7	16.5
2021	4,402	4,115	3,600	11,110	26%	12,019	36%	12,963	46%	8.5	21.0
2022	4,054	3,770	3,600	10,324	25%	11,105	33%	11,912	42%	8.5	21.0
2023	3,762	3,483	3,300	9,603	23%	10,369	31%	11,127	39%	7.8	19.2
2024	3,607	3,325	3,300	9,168	22%	10,008	30%	10,776	38%	7.8	19.2
2025	3,511	3,219	3,100	8,835	21%	9,803	29%	10,608	37%	7.3	18.1
2026	3,499	3,195	3,100	8,692	21%	9,804	29%	10,644	37%	7.3	18.1
2027	3,509	3,190	3,000	8,595	20%	9,846	30%	10,707	38%	7.1	17.5
2028	3,548	3,207	3,000	8,580	20%	9,951	30%	10,812	38%	7.1	17.5
2029	3,584	3,226	3,000	8,576	20%	10,046	30%	10,890	38%	7.1	17.5
2030	3,616	3,240	3,000	8,577	20%	10,124	30%	10,939	38%	7.1	17.5
Total	37,090	39,724	37,753	NA	NA	NA	NA	NA	NA	89	220

Sablefish P*0.40 and P*0.45 (100% attainment scenario)

Table f. Decision table of 12-year projections of spawning stock biomass (SSB) and % unfished (depletion) for alternative states of nature (columns) and management options (rows) beginning in 2019. The low and high states of nature are based on the 2019 SSB ± 1.15·base model SSB standard deviation. The fixed value of unfished recruitment was used to find each state of nature. The results are conditioned on the 2019 and 2020 catches, provided by the Pacific Fisheries Management Council Groundfish Management Team (GMT), being achieved exactly. The low and high catch streams are based on the GMT's requested P* values of 0.35 and 0.45.

Catch scenario	Year	Total catch	Low state (0.25) SSB	Depletion	Base (0.5) SSB	Depletion	High state (0.25) SSB	Depletion
P*=0.35	2019	6,145	42,968	38%	57,444	39%	71,915	41%
	2020	6,288	47,594	42%	63,350	43%	79,161	45%
	2021	7,644	51,414	45%	68,120	46%	84,950	49%
	2022	7,269	51,922	46%	69,059	47%	86,290	50%
	2023	7,064	51,094	45%	68,740	47%	86,292	50%
	2024	6,849	49,847	44%	68,316	46%	86,367	50%
	2025	6,668	48,544	43%	68,079	46%	86,781	50%
	2026	6,513	47,297	41%	68,038	46%	87,474	50%
	2027	6,382	46,136	40%	68,145	46%	88,349	51%
	2028	6,279	45,063	40%	68,354	46%	89,327	51%
	2029	6,182	44,064	39%	68,629	46%	90,356	52%
	2030	6,105	43,135	38%	68,953	47%	91,411	53%
P*=0.4	2019	6,145	42,968	38%	57,444	39%	71,915	41%
	2020	6,288	47,594	42%	63,350	43%	79,161	45%
	2021	8,208	51,414	45%	68,120	46%	84,950	49%
	2022	7,811	51,636	45%	68,778	47%	86,008	49%
	2023	7,599	50,517	44%	68,177	46%	85,727	49%
	2024	7,388	48,988	43%	67,482	46%	85,532	49%
	2025	7,207	47,411	42%	66,984	45%	85,685	49%
	2026	7,055	45,902	40%	66,691	45%	86,129	49%
	2027	6,930	44,489	39%	66,555	45%	86,761	50%
	2028	6,837	43,169	38%	66,525	45%	87,503	50%
	2029	6,752	41,925	37%	66,564	45%	88,300	51%
	2030	6,679	40,750	36%	66,652	45%	89,126	51%
P*=0.45	2019	6,145	42,968	38%	57,444	39%	71,915	41%
	2020	6,288	47,594	42%	63,350	43%	79,161	45%
	2021	8,791	51,414	45%	68,120	46%	84,950	49%
	2022	8,375	51,342	45%	68,488	46%	85,717	49%
	2023	8,158	49,920	44%	67,594	46%	85,142	49%
	2024	7,946	48,097	42%	66,618	45%	84,666	49%
	2025	7,758	46,241	41%	65,851	45%	84,551	49%
	2026	7,614	44,468	39%	65,304	44%	84,740	49%
	2027	7,499	42,799	38%	64,918	44%	85,125	49%
	2028	7,401	41,226	36%	64,643	44%	85,624	49%
	2029	7,331	39,739	35%	64,445	44%	86,188	50%
	2030	7,275	38,320	34%	64,296	44%	86,782	50%

Year	ABC (mt)	Take north of 36° N. lat. (mt)	Take south of 36° N. lat. (mt)	Low State Spawn Biomass (mt)	Low State Depletion	Base Spawn Biomass (mt)	Base Depletion	High State Spawn Biomass (mt)	High State Depletion
2019	6,145			42,968	37.7%	57,444	38.9%	71,915	41.3%
2020	6,288			47,594	41.7%	63,350	42.9%	79,161	45.5%
2021	8,208	6,057	600	51,414	45.1%	68,120	46.1%	84,950	48.8%
2022	7,811	5,765	600	52,421	46.0%	69,528	47.1%	86,783	49.9%
2023	7,599	5,608	600	52,084	45.7%	69,648	47.1%	87,260	50.1%
2024	7,388	5,453	600	51,294	45.0%	69,625	47.1%	87,770	50.4%
2025	7,207	5,319	600	50,399	44.2%	69,742	47.2%	88,569	50.9%
2026	7,055	5,207	600	49,518	43.4%	70,014	47.4%	89,606	51.5%
2027	6,930	5,115	600	48,684	42.7%	70,400	47.7%	90,786	52.2%
2028	6,837	5,045	600	47,905	42.0%	70,858	48.0%	92,036	52.9%
2029	6,752	4,983	600	47,173	41.4%	71,354	48.3%	93,307	53.6%
2030	6,679	4,929	600	46,486	40.8%	71,874	48.7%	94,575	54.3%

Year	Total catch	Low state (0.25) SSB	Low state (0.25) Depletion	Base (0.5) SSB	Base (0.5) Depletion	High state (0.25) SSB	High state (0.25) Depletion
2019	6,145	42,968	38%	57,444	%	71,915	41%
2020	6,288	47,594	42%	63,350	43%	79,161	45%
2021	7,644	51,414	45%	68,120	46%	84,950	49%
2022	7,269	51,922	46%	69,059	47%	86,290	50%
2023	7,064	51,094	45%	68,740	47%	86,292	50%
2024	6,849	49,847	44%	68,316	46%	86,367	50%
2025	6,668	48,544	43%	68,079	46%	86,781	50%
2026	6,513	47,297	41%	68,038	46%	87,474	50%
2027	6,382	46,136	40%	68,145	46%	88,349	51%
2028	6,279	45,063	40%	68,354	46%	89,327	51%
2029	6,182	44,064	39%	68,629	46%	90,356	52%
2030	6,105	43,135	38%	68,953	47%	91,411	53%

- Actually the P*0.35 numbers from the full catch scenario
- But the STAT said the catches from this run are very close to the P*0.45 reduced catch scenario
- So it's fine to use them here