

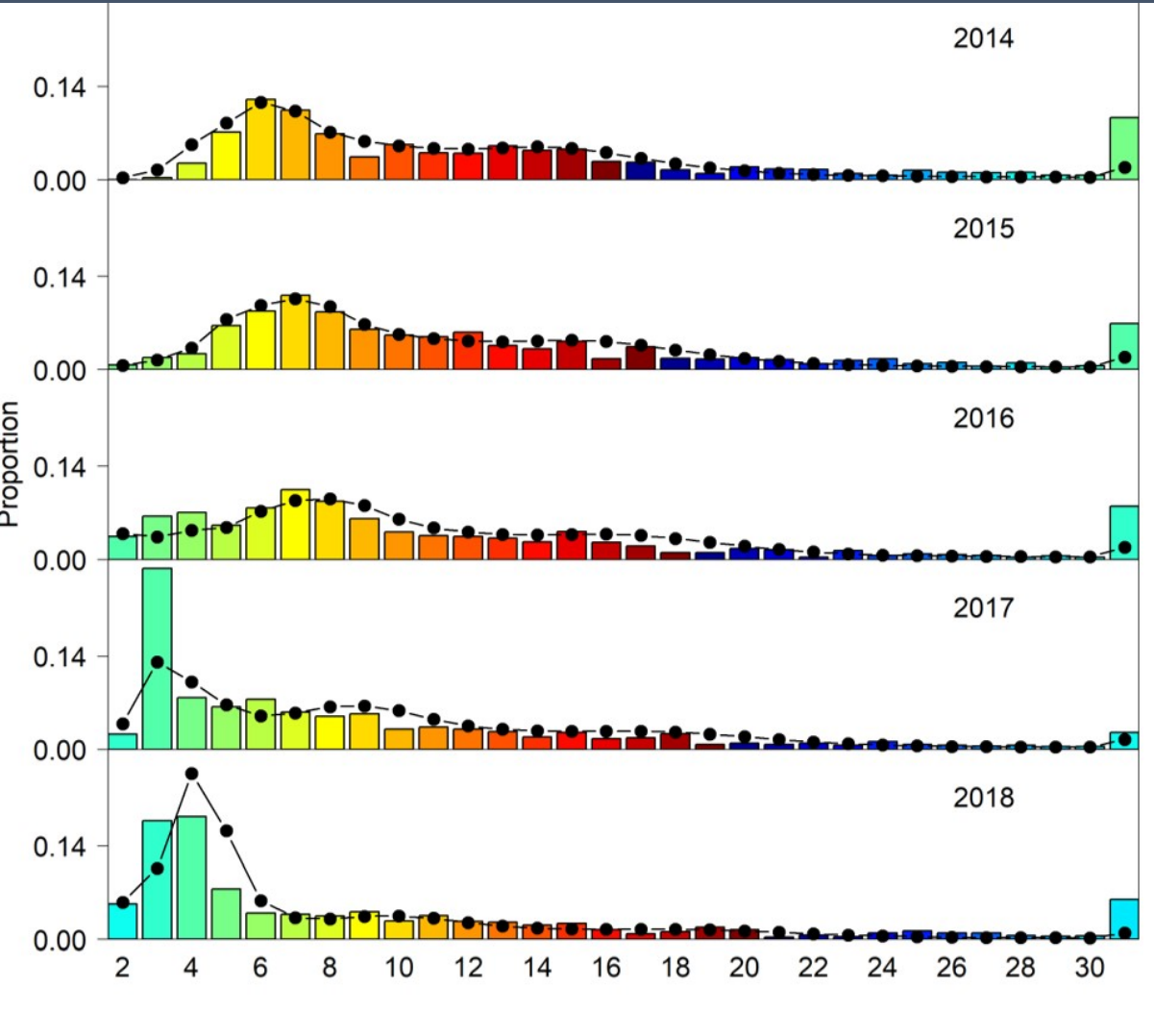


Source: <https://www.seafoods.com/>

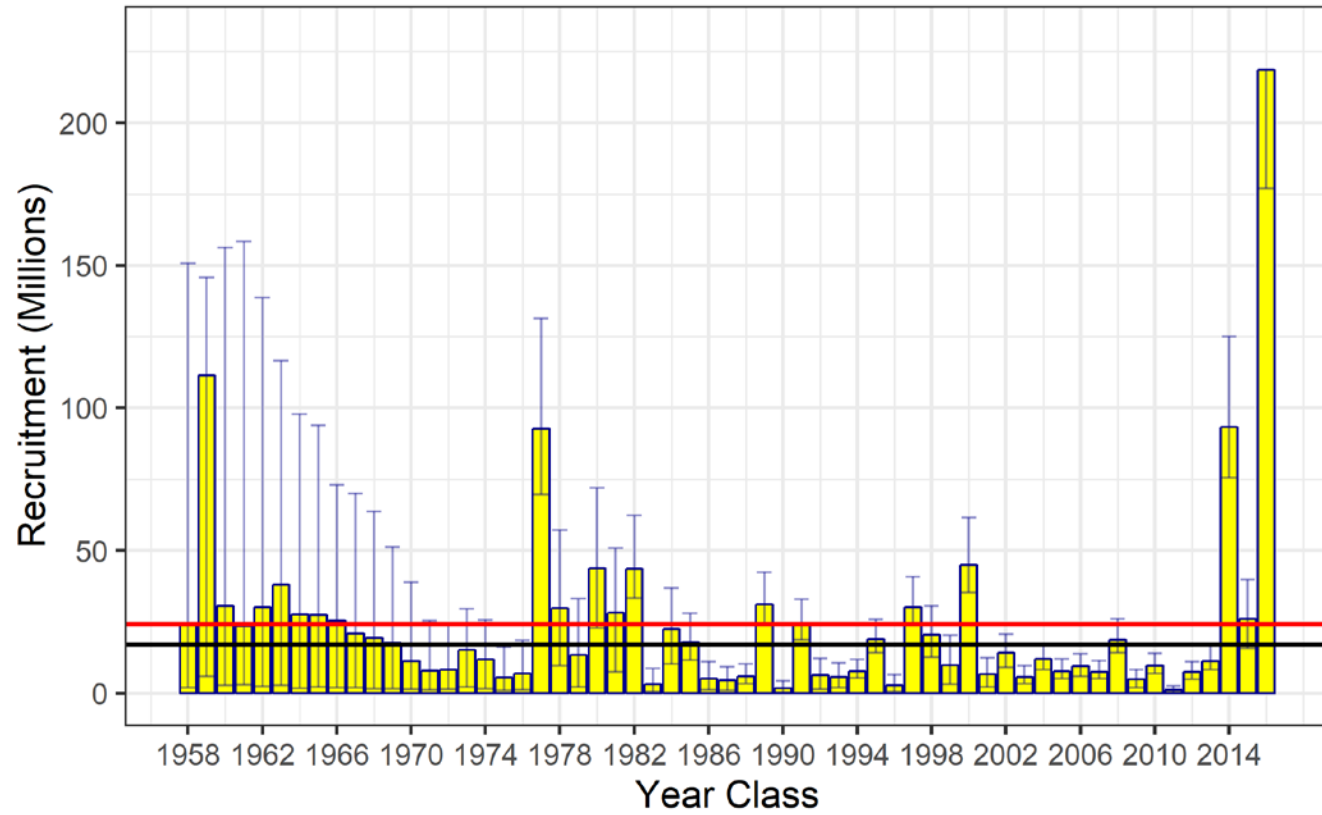
Sablefish Discarding Allowance

Discussion Paper for December 2019

Fixed gear fishery



Survey



1. Background – Previous Discussion Papers

Oct 2018

1. Regs not likely to be applicable to year classes of concern
2. Increased yield from size limit not likely
3. DMRs, min size are in use in other jurisdictions
4. Operational flexibility would be gained
5. IFQ accounting will be challenging
6. No room in trawl TAC to absorb IFQ discards
7. Value/lb varies temporally but is consistent spatially
8. Market size comp of landings affected by strong recruitment

1. Background – Previous Discussion Papers

Apr 2019

- Significant observer resources needed
- Proxy DMRs have potential
- On/Off discarding relies on accurate initial year class estimates
- Discarding unlikely to reduce whale depredation
- Gear modifications could reduce catches of small fish
- Exceeding TAC possible under current allocation scheme
- Increased high-grading potential
- Enforcement concerns related to complexity, size limit, IFQ accounting

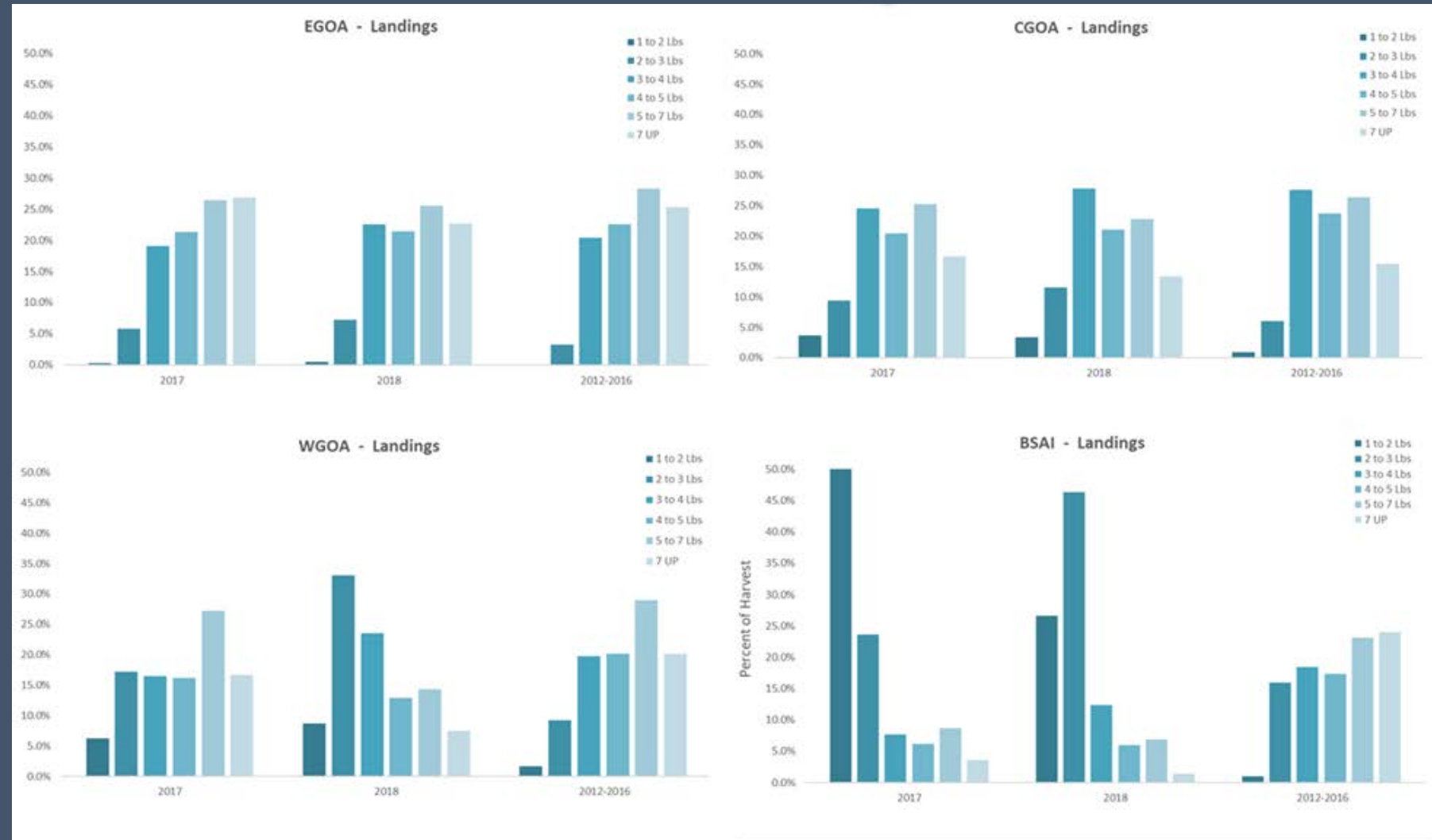
1. Background - April 2019 Council Motion

- Voluntary versus mandatory release of sablefish
- Single size limits versus area specific size limits
 - Areas to be explored:
 - GOA, BSAI
 - EGOA, CGOA, WGOA, BSAI
- Options for discard accounting relative to ABC and TAC
- The use of proxy DMR options at the initiation of sablefish discarding
 - 12% (Stachura et al), 16% (State of Alaska), 20% (PFMC)
- Use of gear specific DMRs for IFQ fisheries
- Address concerns related to monitoring and enforcement options from:
 - Discards estimated from the survey
 - Discards estimated based on observer and EM data
 - Discards estimated based on logbook reporting
- Implications of these changes on overall stock abundance and allocations to trawl and IFQ fisheries

2. Voluntary versus mandatory

- Stakeholder (IFQ Committee)
 - Voluntary discarding maximizes flexibility
 - Encounters with small, marginally valuable fish are not predictable.
 - Financially punitive conditions more frequent for size-based mandatory than no discarding.
- Analyst (Groundfish Plan Teams)
 - Voluntary discarding adds to uncertainty.
 - Probability of discarding
 - No uncertainty in catches
 - Significant observer monitoring necessary
- Enforcement (NOAA OLE)
 - Voluntary discarding easier to enforce than mandatory length-based

2. Voluntary versus mandatory

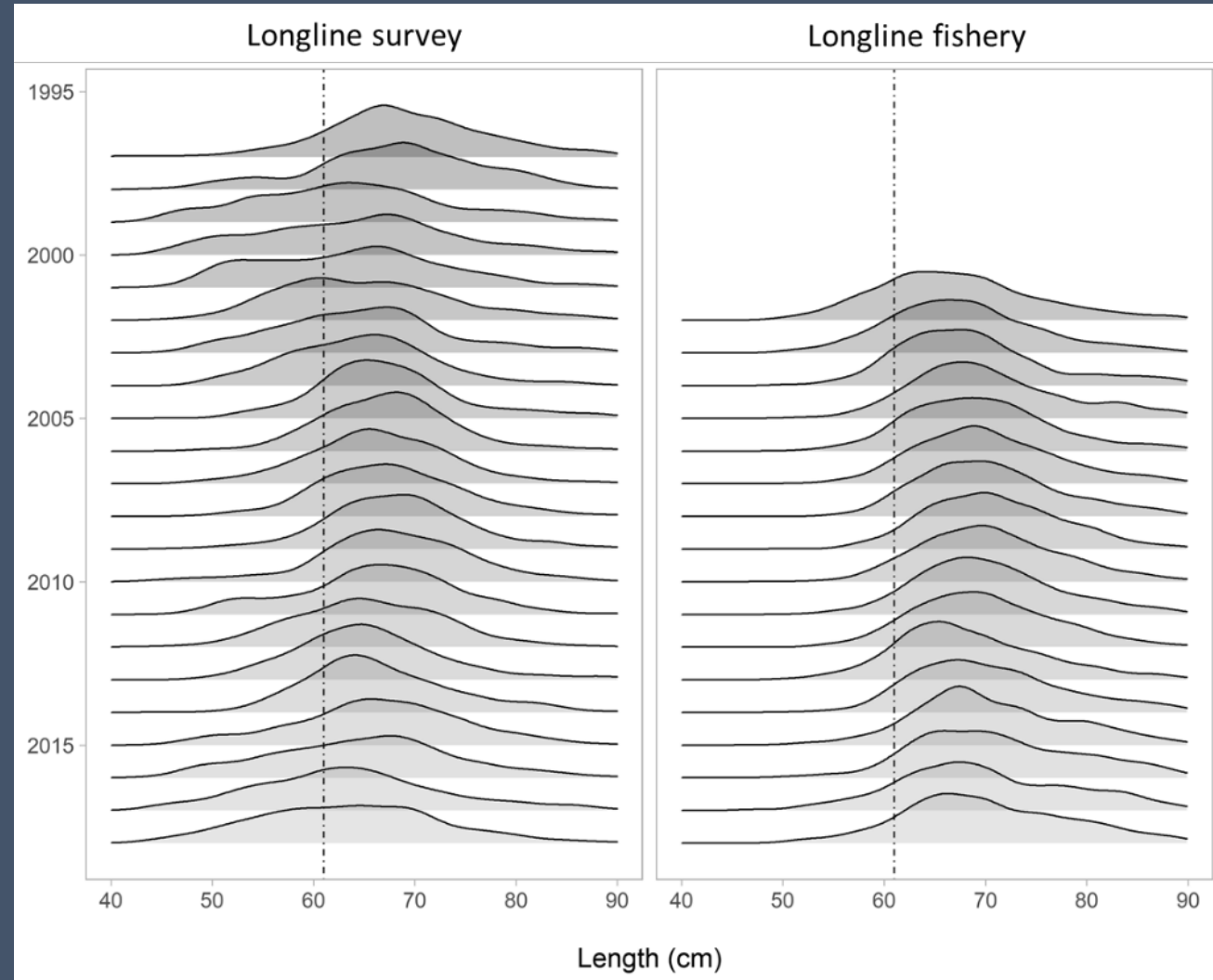


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 - Financially punitive conditions more frequent for size-based mandatory than no discarding.
- Analyst (Groundfish Plan Teams)
 - Voluntary discarding adds to uncertainty.
 - Probability of discarding
 - Assessment currently assumes no uncertainty in catches
 - Significant observer monitoring necessary
- Enforcement (NOAA OLE)
 - Voluntary discarding easier to enforce than mandatory length-based

2. Voluntary versus mandatory

Chatham
Strait
Fishery

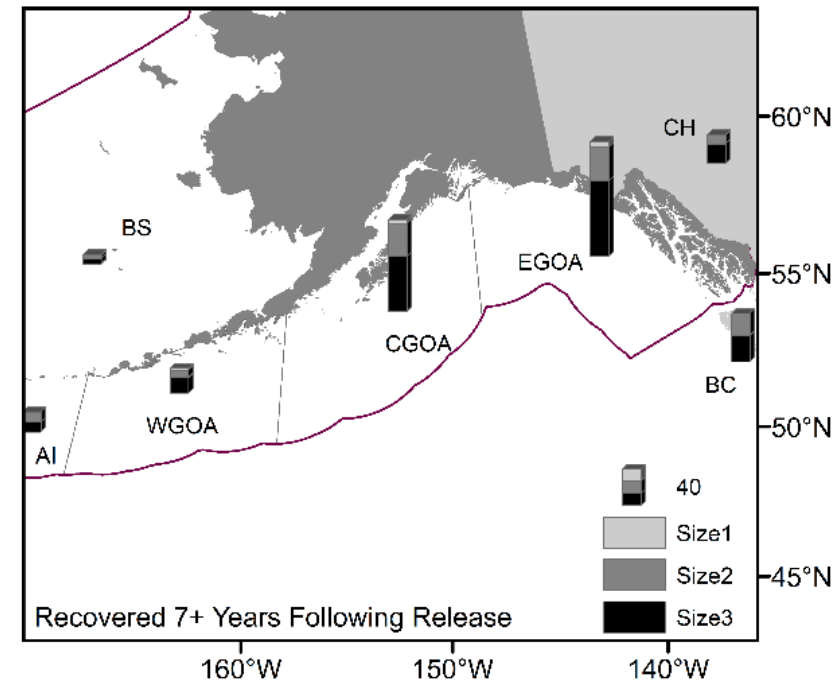
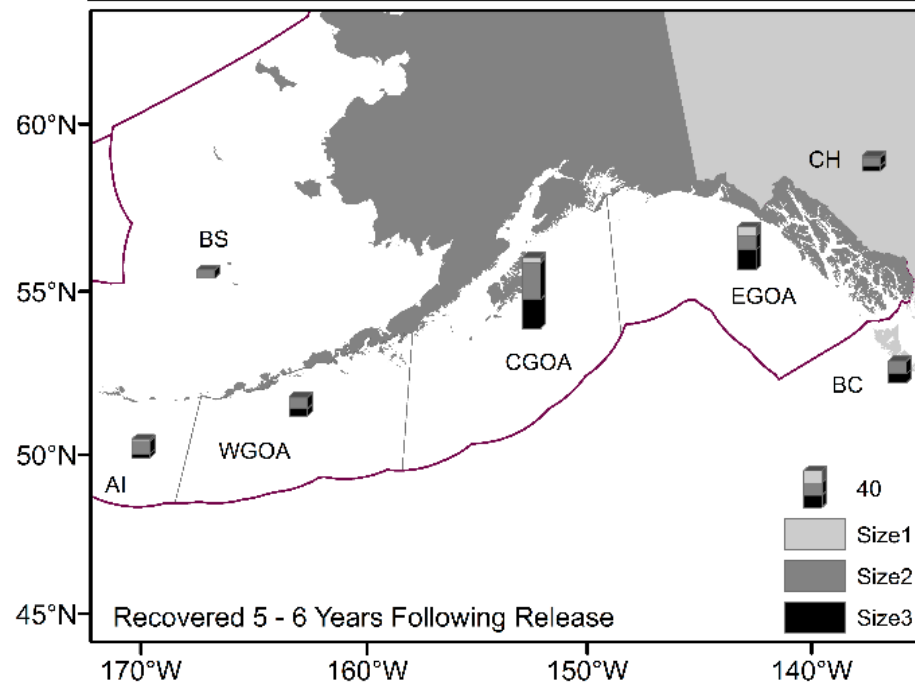
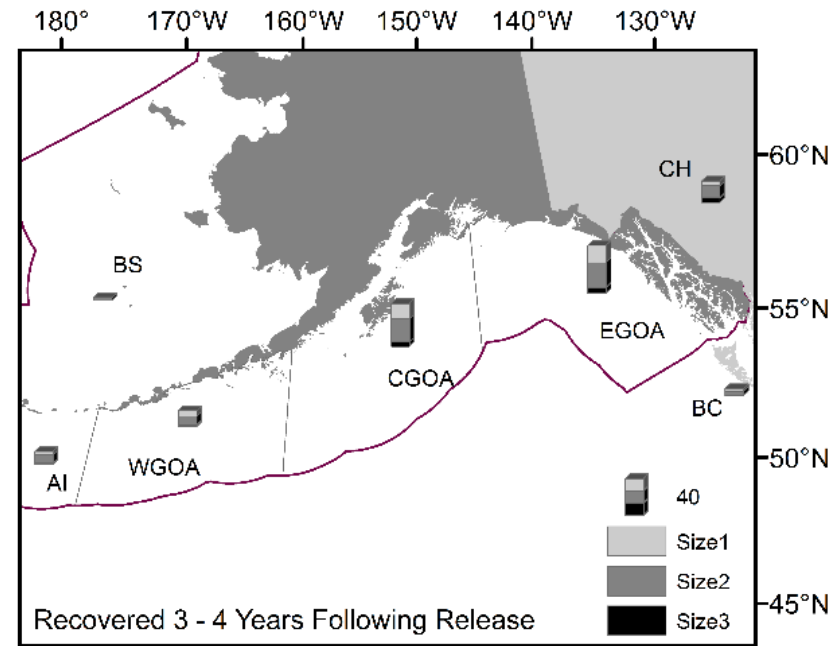
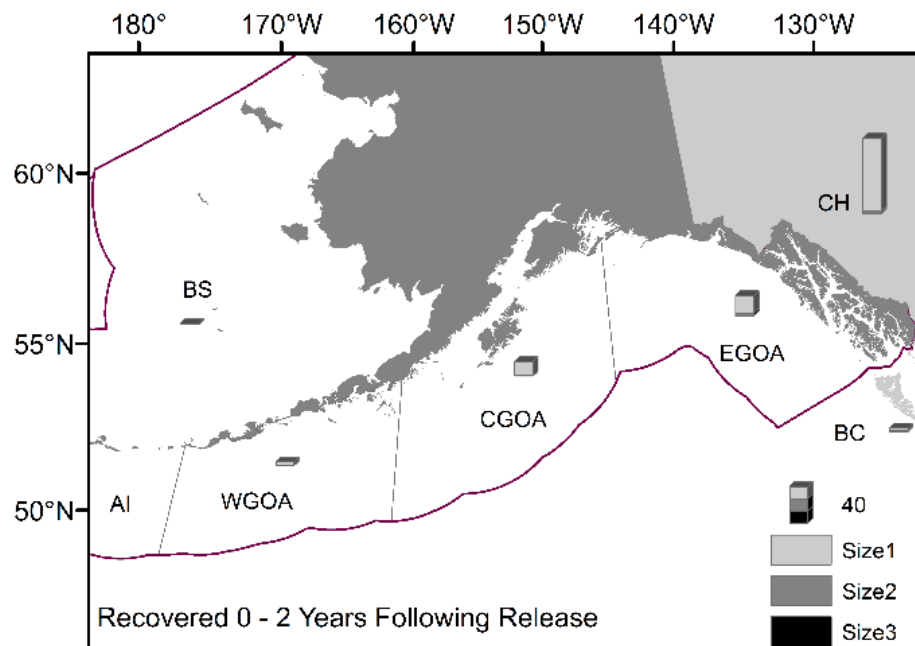


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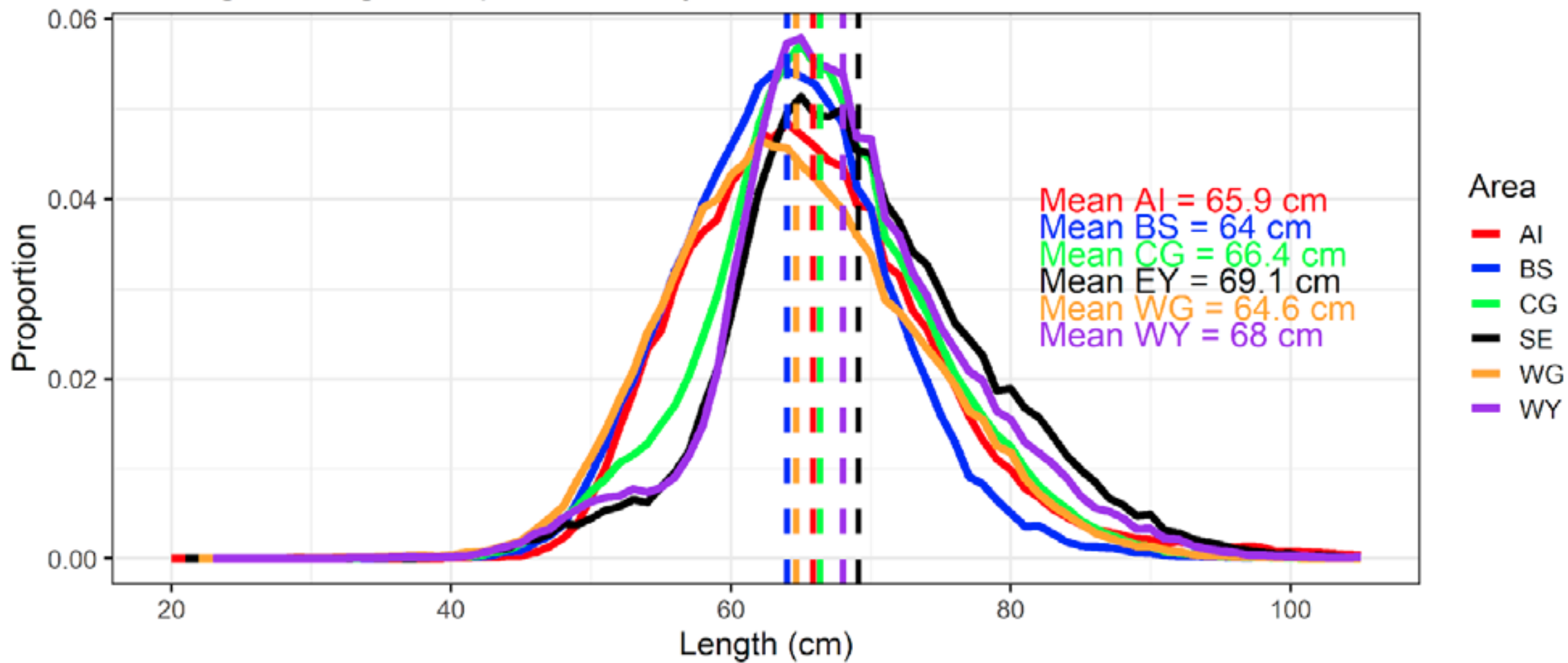
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3. Single size limits versus area specific size limits

- Areas to be explored:
 - GOA, BSAI
 - EGOA, CGOA, WGOA, BSAI
- Assumes area-specific demographic difference in population structure



Fixed gear length frequencies all years



3. Single size limits versus area specific size limits

- Additional Enforcement concerns to address:
 - What are the geographic boundaries distinguishing size limits?
 - Does a vessel have to off-load its catch in the same “size-area” it was collected?
 - Can sablefish IFQ vessels directed fish for sablefish across multiple “size-areas” on the same trip? If so, what are the ramifications for catch-accounting?
 - Mixed hauls of different sized fish from different areas with different size limits?

4. Accounting under TAC/ABC

Table 7—Final 2019 Sablefish TAC Specifications in the Gulf of Alaska and Allocations to Fixed and Trawl Gear

[Values are rounded to the nearest metric ton]

Area/district	TAC	Fixed gear allocation	Trawl gear allocation
Western	1,581	1,265	316
Central ¹	5,178	4,142	1,036
West Yakutat ²	1,828	1,587	241
Southeast Outside	2,984	2,984	0
Total	11,571	9,978	1,593

Table 10—Final 2019 and 2020 Gear Shares and CDQ Reserve of BSAI

Sablefish TACs

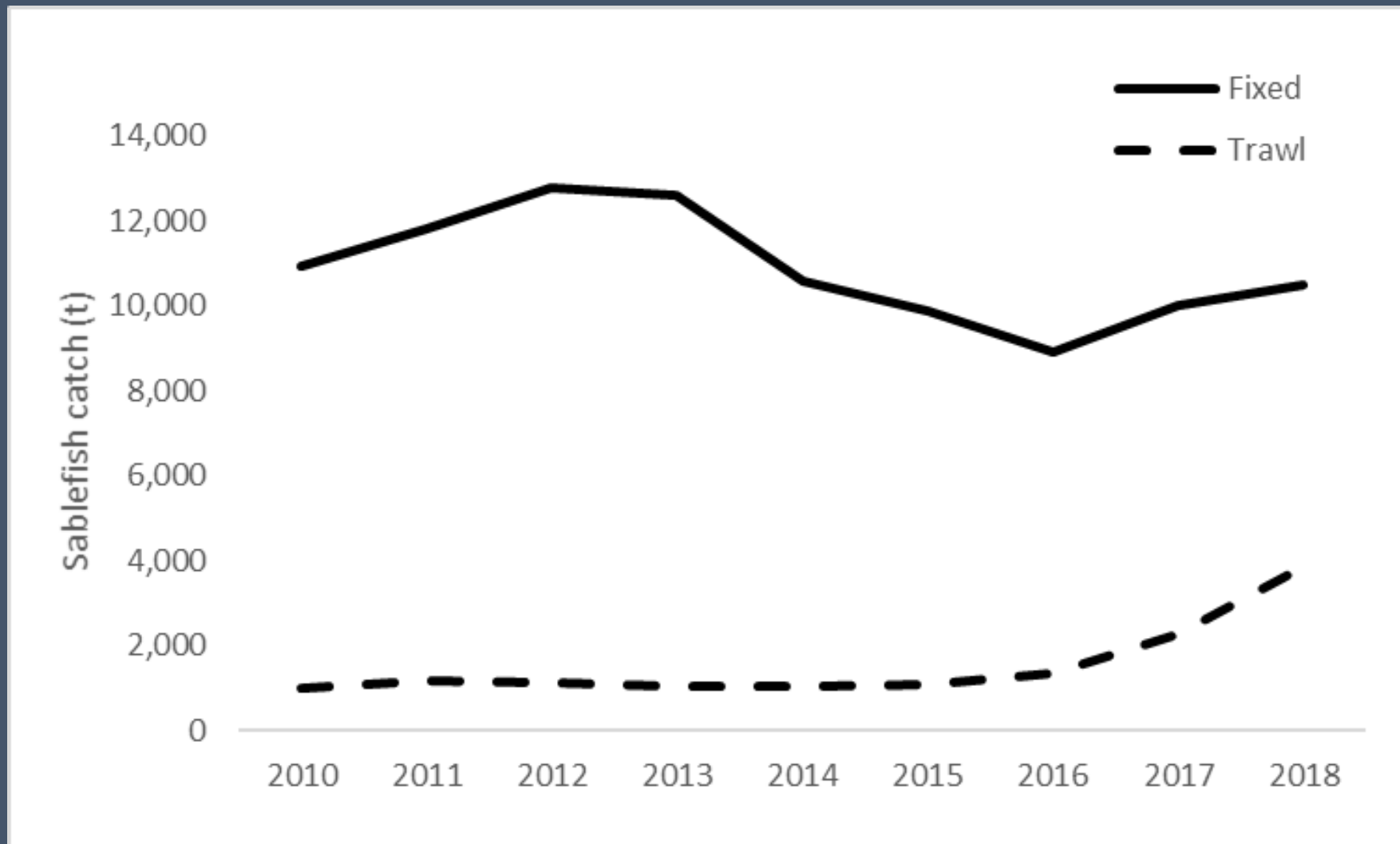
[Amounts are in metric tons]

Subarea and gear	Percent of TAC	2019 Share of TAC	2019 ITAC	2019 CDQ reserve	2020 Share of TAC	2020 ITAC	2020 CDQ reserve
Bering Sea							
Trawl ¹	50	745	633	56	997	847	
Hook-and-line/pot gear ²	50	745	596	149	n/a	n/a	
Total	100	1,489	1,228	205	997	847	
Aleutian Islands							
Trawl ¹	25	502	427	38	672	571	
Hook-and-line/pot gear ²	75	1,506	1,205	301	n/a	n/a	
Total	100	2,008	1,632	339	672	571	

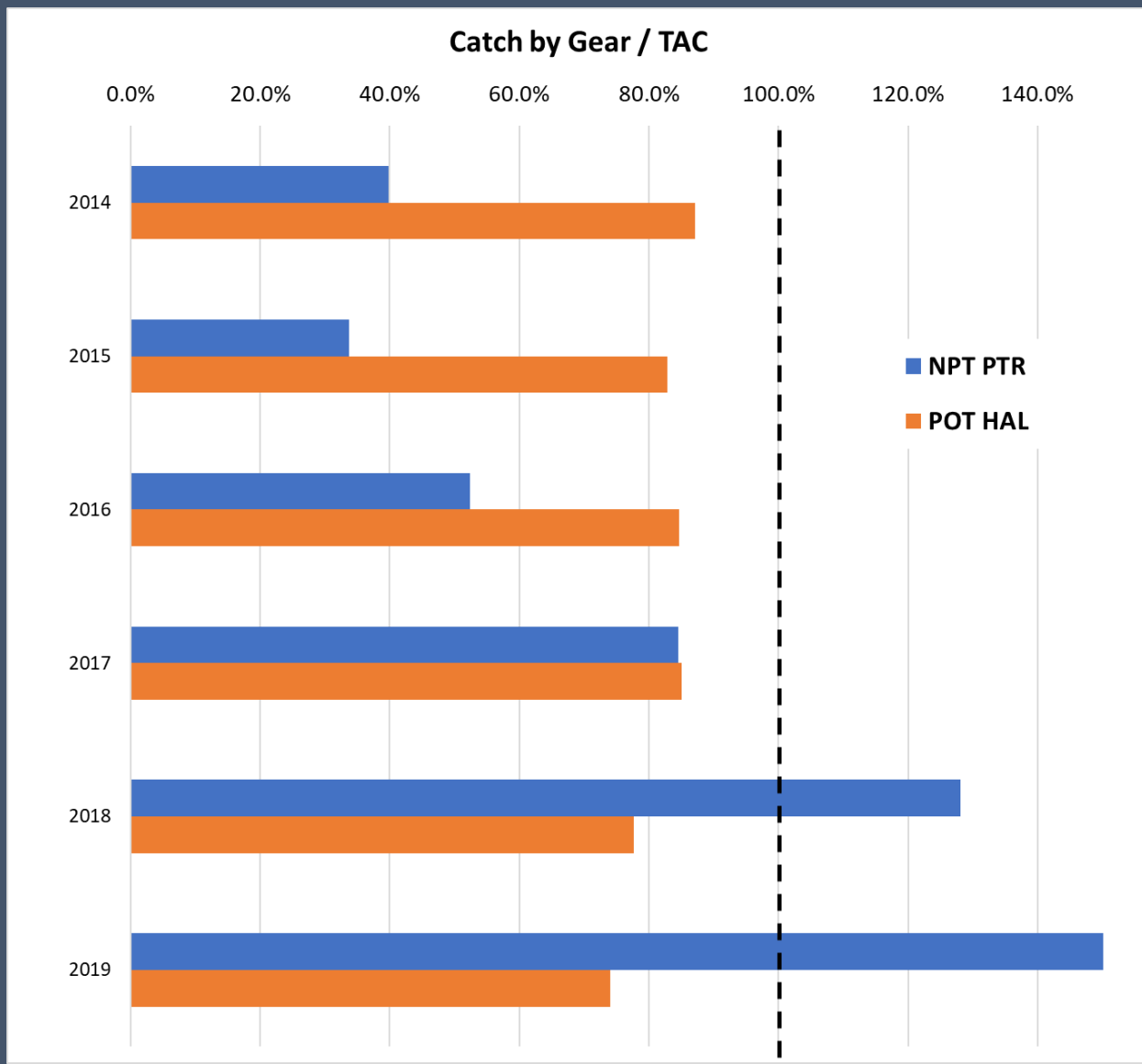
4. Accounting under TAC/ABC

- TAC currently allocated to fixed gear, trawl by subarea
- Currently no set-aside for discards in IFQ fishery
- IFQ discarding could reduce TAC allocations overall or for IFQ vessels only
 - Overall TAC reduction may constrain trawl vessels

4. Accounting under TAC/ABC



4. Accounting under TAC/ABC



BSAI/GOA Groundfish Combined

- Effort Report for Groundfish Catcher Processors
 - *Discontinued June 1, 2019*
- Fisheries Outlook: Weekly groundfish fishery summary for the BSAI and GOA
 - 2019 (TXT)
- Forage Fish and Grenadier Catch
 - 2019, 2018, 2017, 2016, 2015, 2014, 2013
- Groundfish by Gear
 - 2019, 2018, 2017, 2016, 2015, 2014, 2013 (CSVs)
- Groundfish Retained and Discarded
 - 2019, 2018, 2017, 2016, 2015, 2014, 2013 (CSVs)
- Pacific Cod and Pollock Products (Codes)
 - 2019, 2018, 2017, 2016, 2015, 2014, 2013 (CSVs)
- Status of Fisheries - AFA Unrestricted Catcher/Processors and Non-Exempt Catcher Vessels, Hook-and-Line Gear, Non-AFA Crab Vessels, Pot and Jig Gear, Trawl Gear
 - Current year - 2013

4. Accounting under TAC/ABC

- Within IFQ
 - IFQ TAC – everyone's IFQ is reduced
 - Set it and forget it
 - Estimate using observer pgm and discard rates
 - Vary by area, based on differential discard levels
 - IFQ-specific allowance
 - requires real time reporting of discard mortalities
 - very high monitoring burden
 - transfers complicated
 - special allowance?

4. Accounting under TAC/ABC

Year	Gear	BSAI			GOA			Combined		
		Discard	%Discard	Catch	Discard	%Discard	Catch	Discard	%Discard	Catch
2015	H&L	14	2.9%	489	593	6.4%	9,277	608	6.2%	9,766
	Other	5	3.5%	153	184	17.4%	1,054	189	15.7%	1,207
	Total	20	3.1%	642	777	7.5%	10,331	797	7.3%	10,972
2016	H&L	77	18.5%	415	653	7.8%	8,316	730	8.4%	8,731
	Other	9	1.9%	466	191	18.0%	1,060	199	13.1%	1,526
	Total	86	9.7%	881	843	9.0%	9,376	929	9.1%	10,257
2017	H&L	47	17.2%	273	431	6.0%	7,215	478	6.4%	7,488
	Other	173	13.2%	1,307	335	17.9%	1,875	508	16.0%	3,183
	Total	220	13.9%	1,580	766	8.4%	9,090	986	9.2%	10,670
2018	H&L	73	21.1%	348	600	7.2%	8,371	673	7.7%	8,718
	Other	396	20.7%	1,911	1,648	44.4%	3,713	2,044	36.3%	5,624
	Total	469	20.8%	2,258	2,249	18.6%	12,083	2,718	18.9%	14,342
2019	H&L	110	34.7%	318	528	8.4%	6,277	638	9.7%	6,594
	Other	1,479	46.7%	3,167	987	30.3%	3,251	2,465	38.4%	6,418
	Total	1,589	45.6%	3,485	1,514	15.9%	9,528	3,103	23.8%	13,012
2010-2018 mean	H&L	39	5.1%	758	482	5.2%	9,356	521	5.1%	10,114
	Other	68	9.0%	762	308	22.4%	1,375	377	17.6%	2,136
	Total	107	7.0%	1,520	790	7.4%	10,731	897	7.3%	12,250

4. Accounting under TAC/ABC

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4. Accounting under TAC/ABC

- Assessment does not include uncertainty in catches
- Allowance introduces uncertainty in probability of discarding
 - Assumed discards based on rate
- Risk matrix
 - Supposed to address unquantifiable risk
 - Does not address area-based uncertainty
- Logbooks not an option
- Apportionment

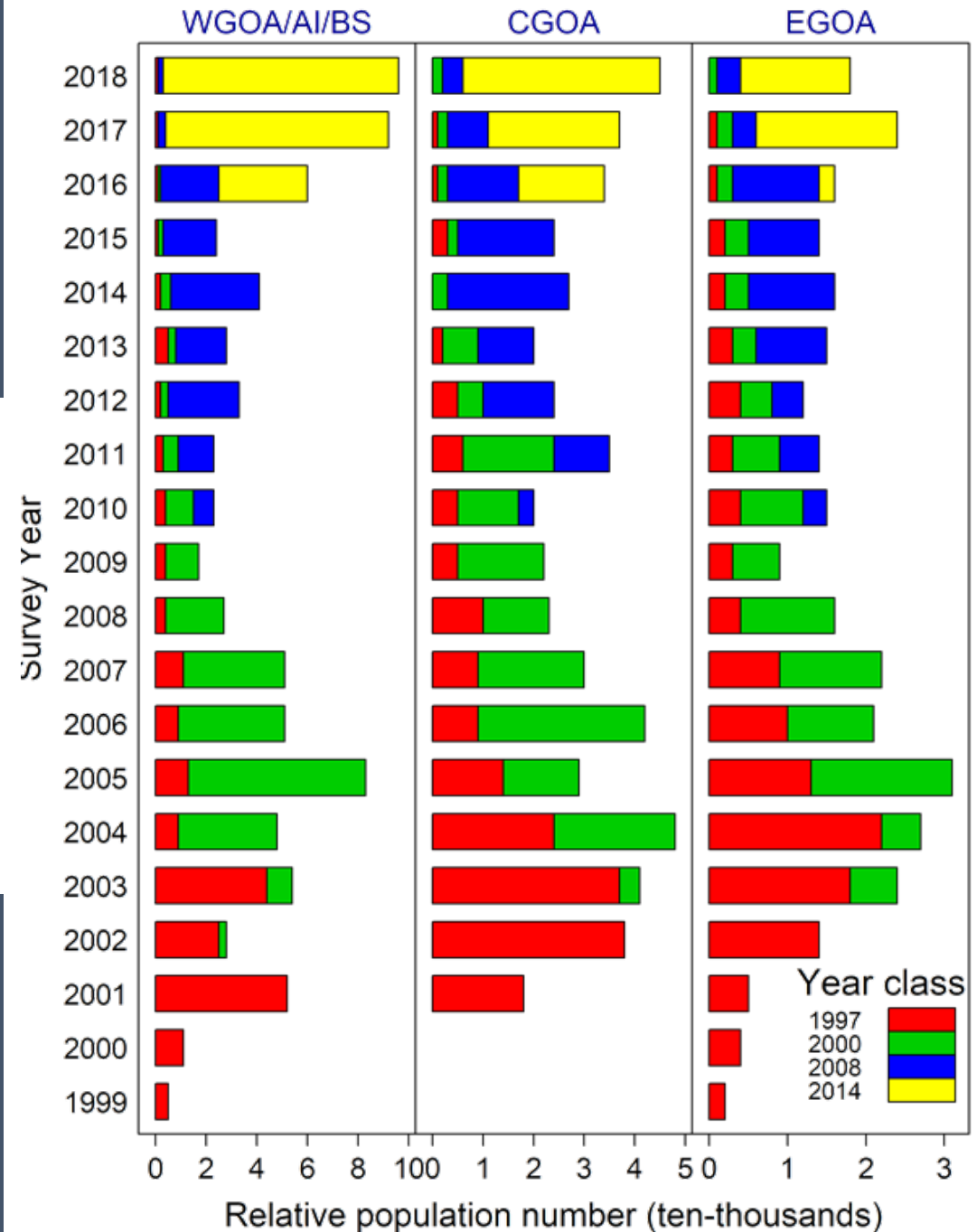
4. Accounting under TAC/ABC

Author recommended 2020 ABC (with whale depredation adjustments)

Area	AI	BS	WG	CG	WY*	EY*	Total
2019 ABC	2,030	1,501	1,659	5,246	1,765	3,179	15,380
2020 ABC	2,537	1,876	2,074	6,558	2,206	3,974	19,225
2016-2018 avg. depredation	16	19	105	91	45	94	370
Ratio 2020:2019 ABC	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Deduct 3 year adjusted average	-20	-23	-132	-113	-56	-118	-462
**2020 ABC_w	2,517	1,853	1,942	6,445	2,150	3,856	18,763
Change from 2019 ABC _w	25%	24%	23%	24%	29%	23%	25%

* Before 95:5 hook and line: trawl split shown below. ** ABC_w is the author recommended ABC that accounts for whales.

Top 4 year classes by Survey and Area



5. Use of proxy discard mortality rate options at the initiation of sablefish discarding

- The use of proxy DMR options at the initiation of sablefish discarding
 - 12% (Stachura et al)
 - 16% (State of Alaska)
 - 20% (PFMC)
- DMR generate sablefish “saving”

Table 4

Sold Weight (1,000 lbs.)								
DMR	Size Category	2012	2013	2014	2015	2016	2017	2018
100% (Status Quo)	1-3 lbs	911	904	854	698	851	1474	1128
	> 3 lbs	15919	15624	12995	12134	10690	11386	6918
	Total	16830	16528	13849	12832	11541	12860	8046
12% (Stachura et al.)	1-3 lbs	109.32	108.48	102.48	83.76	102.12	176.88	135.36
	> 3 lbs	15919	15624	12995	12134	10690	11386	6918
	Total	16028.32	15732.5	13097.5	12217.8	10792.1	11562.9	7053.36
16% (State of Alaska)	1-3 lbs	145.76	144.64	136.64	111.68	136.16	235.84	180.48
	> 3 lbs	15919	15624	12995	12134	10690	11386	6918
	Total	16064.76	15768.6	13131.6	12245.7	10826.2	11621.8	7098.48
20% (PFMC)	1-3 lbs	182.2	180.8	170.8	139.6	170.2	294.8	225.6
	> 3 lbs	15919	15624	12995	12134	10690	11386	6918
	Total	16101.2	15804.8	13165.8	12273.6	10860.2	11680.8	7143.6

Table 5

Percent reduction in landed Sablefish as a result of DMRs.							
DMR	2012	2013	2014	2015	2016	2017	2018
12% (Stachura et al.)	-4.76	-4.81	-5.43	-4.79	-6.49	-10.09	-12.34
16% (State of Alaska)	-4.55	-4.59	-5.18	-4.57	-6.19	-9.63	-11.78
20% (PFMC)	-4.33	-4.38	-4.93	-4.35	-5.90	-9.17	-11.22

Table 6

Sablefish savings in sold weight (1,000 lbs.)							
DMR	2012	2013	2014	2015	2016	2017	2018
12% (Stachura et al.)	801.68	795.52	751.52	614.24	748.88	1297.12	992.64
16% (State of Alaska)	765.24	759.36	717.36	586.32	714.84	1238.16	947.52
20% (PFMC)	728.80	723.20	683.20	558.40	680.80	1179.20	902.40

6. Use of gear specific DMRs for IFQ fisheries

- Use of gear specific DMRs for IFQ fisheries
 - 7% (halibut in pots 2018)
 - 4% (halibut in pots 2019)
 - 2% (hypothetical)

Table 8

HAL - Percent reduction in landed Sablefish		
DMR	2017	2018
12% (Stachura et al.)	-8.20	-10.70
16% (State of Alaska)	-7.83	-10.22
20% (PFMC)	-7.46	-9.73

Pots - Percent reduction in landed Sablefish		
DMR	2017	2018
2% (Hypothetical DMR)	-38.68	-36.18
4% (2019 halibut)	-37.89	-35.45
7% (2018 halibut)	-36.70	-34.34

Table 9

HAL - Sablefish savings in sold weight (1,000 lbs.)		
DMR	2017	2018
12% (Stachura et al.)	914.6	1359.4
16% (State of Alaska)	873.0	1297.6
20% (PFMC)	831.5	1235.8

Pots - Sablefish savings in sold weight (1,000 lbs.)		
DMR	2017	2018
2% (Hypothetical DMR)	546.4	667.1
4% (2019 halibut)	535.2	653.5
7% (2018 halibut)	518.5	633.1

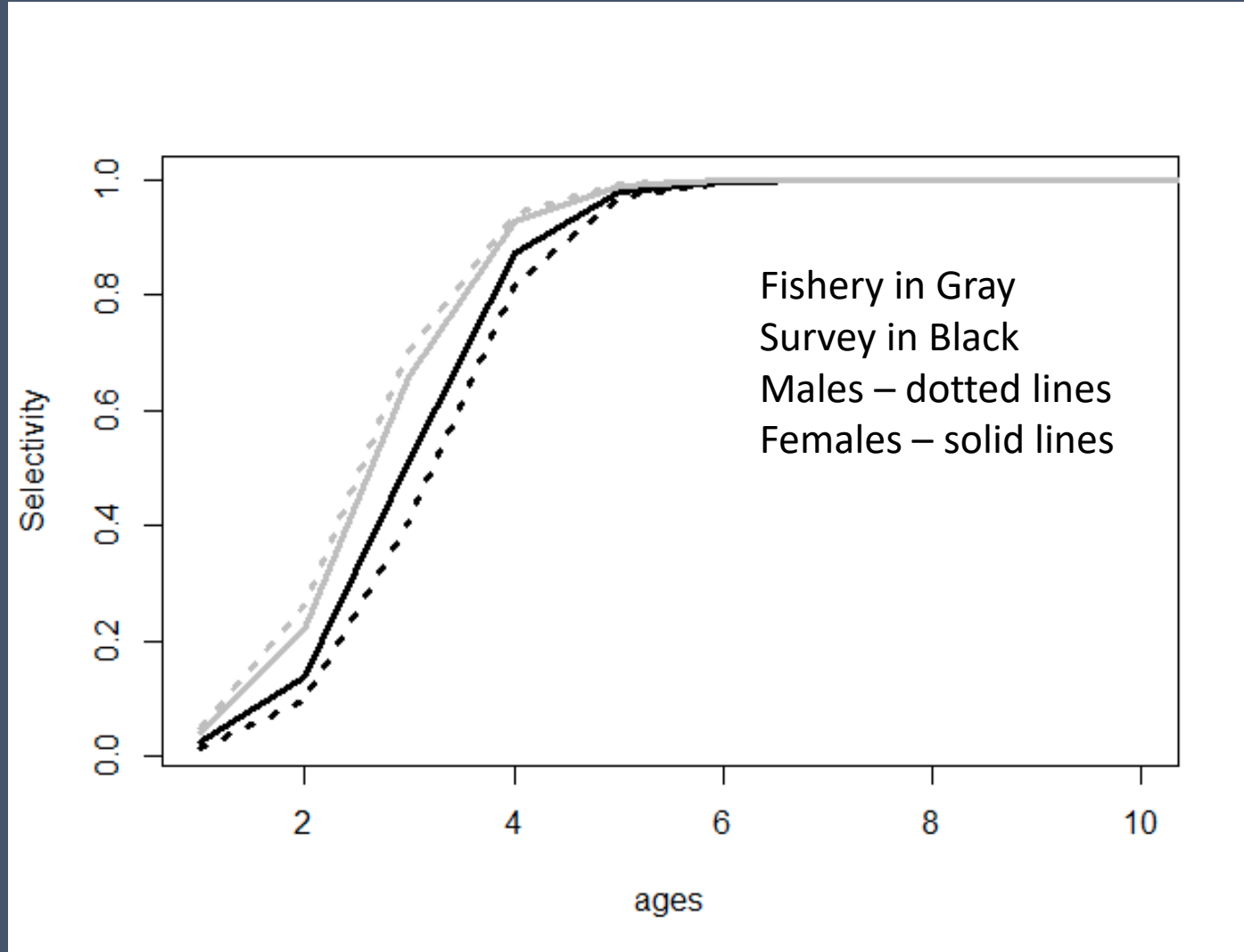
7. Concerns related to monitoring and enforcement options

- Address concerns related to monitoring and enforcement options from:
 - Discards estimated from the survey
 - Discards estimated based on logbook reporting
 - Discards estimated based on observer and EM data

Discards estimated from the survey

- Alaska Fisheries Science Center Longline survey
 - Survey depth range approximately 200 – 1000 m
 - Intent to survey all sablefish habitat in GOA and BSAI
 - Sample entire population structure (entire size and age range)
- Directed Longline Fishery
 - Driven by economics
 - Fish in areas with older and larger fish

Discards estimated from the survey



Discards estimated from the survey

- Challenges
 - Differences in selectivity would add increased uncertainty into stock assessment model
 - Real-time estimates not available
 - Pot gear?

Discards estimated based on logbook reporting

- Currently, data collected by observers and vessel captains
- No specific data on weight or viability
- Real-time data not available

Discards estimated based on observer and EM data

- Key Issues
 - Bias – Observer Data
 - Discard Bias and CAS
 - Account Management

Discards estimated based on observer and EM data

- Bias – Observer Data
 - Weight Estimation

$$\text{Number of fish in a set} \times \text{Average Species-Specific Weight} = \text{Total catch weight}$$


$$\text{Total catch weight} \times \text{Proportion of fish discarded} = \text{Discarded weight}$$


$$\text{Discarded weight} \stackrel{\text{Weight distribution}}{=} \text{Retained weight}$$


Discards estimated based on observer and EM data

- Bias – Observer Data
 - Weight Estimation
 - Electronic Monitoring



Discards estimated based on observer and EM data

- Bias – Observer Data
 - Weight Estimation
 - Electronic Monitoring
 - Voluntary versus Mandatory size limit

Discards estimated based on observer and EM data

- Bias – Observer Data
- Discard Bias and Catch Accounting System

Discards estimated based on observer and EM data

- Bias – Observer Data
- Discard Bias and Catch Accounting System
- Account Management

Discards estimated based on observer and EM data

- Observer and EM data conclusions
 - Observer: Need information on length and weight of discards
 - EM: New method would be needed

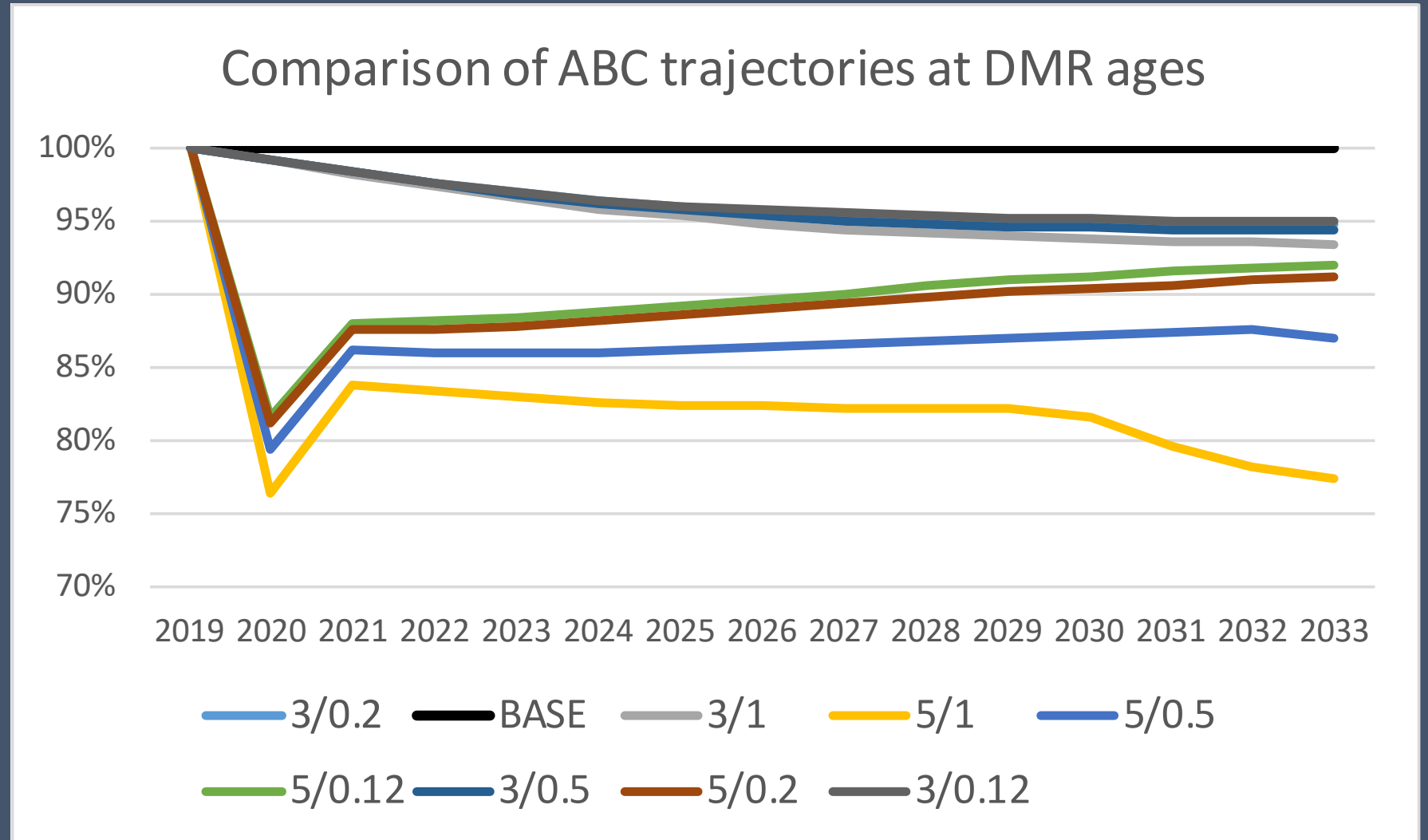
8. Impacts on Population

- YPR (Lowe et al. 1991) showed no benefit to stock
- Hypothetical scenarios
 - ABC to be caught each year
 - Discards did not contribute to ABC.
 - Impacts likely less than in the forecasts
 - Discarding small sablefish would increase fishing pressure on older fish
- ABC declines very rapidly initially, especially for a larger size limit.
- SSB declines
- Fishing mortality on older fish is greater than current.

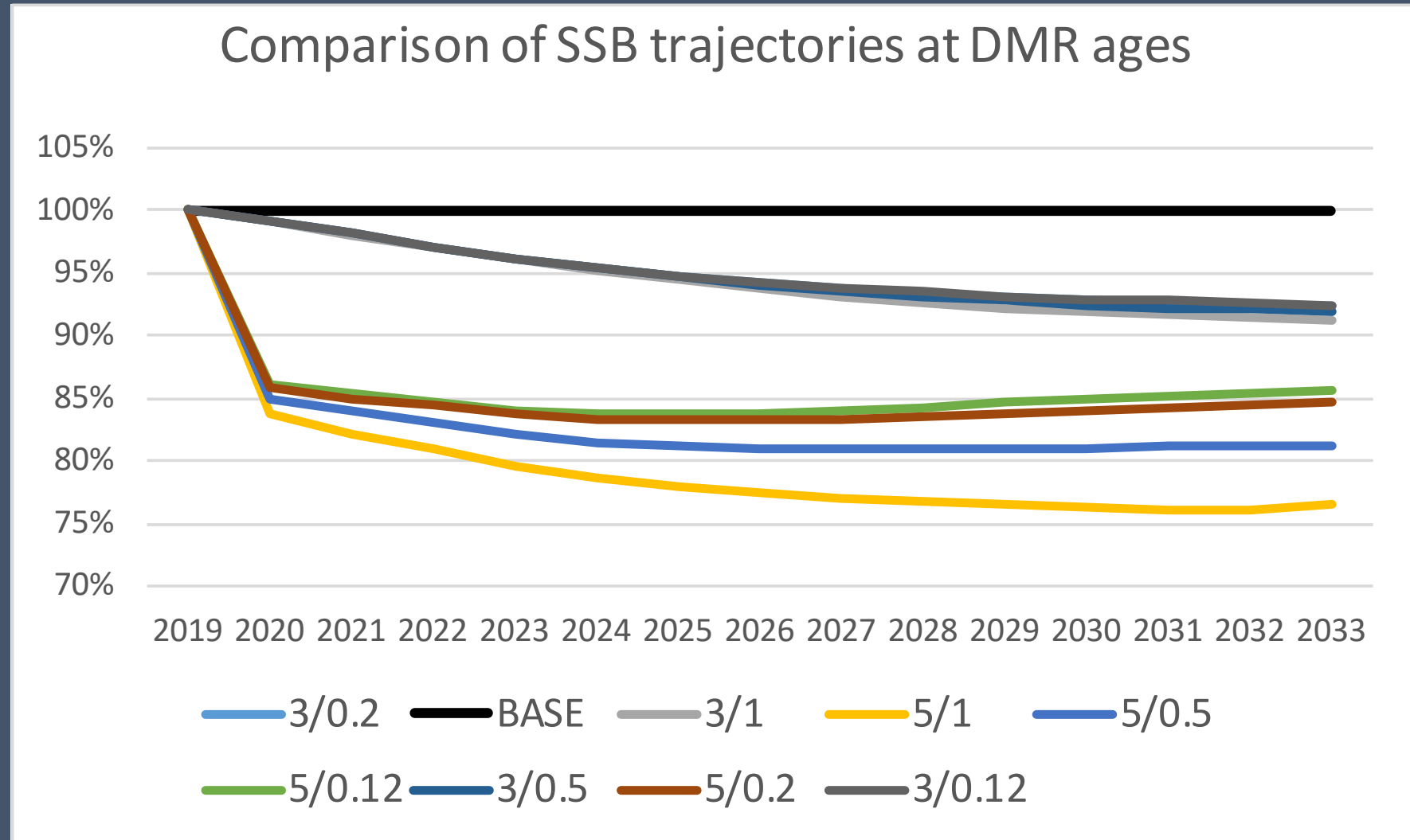
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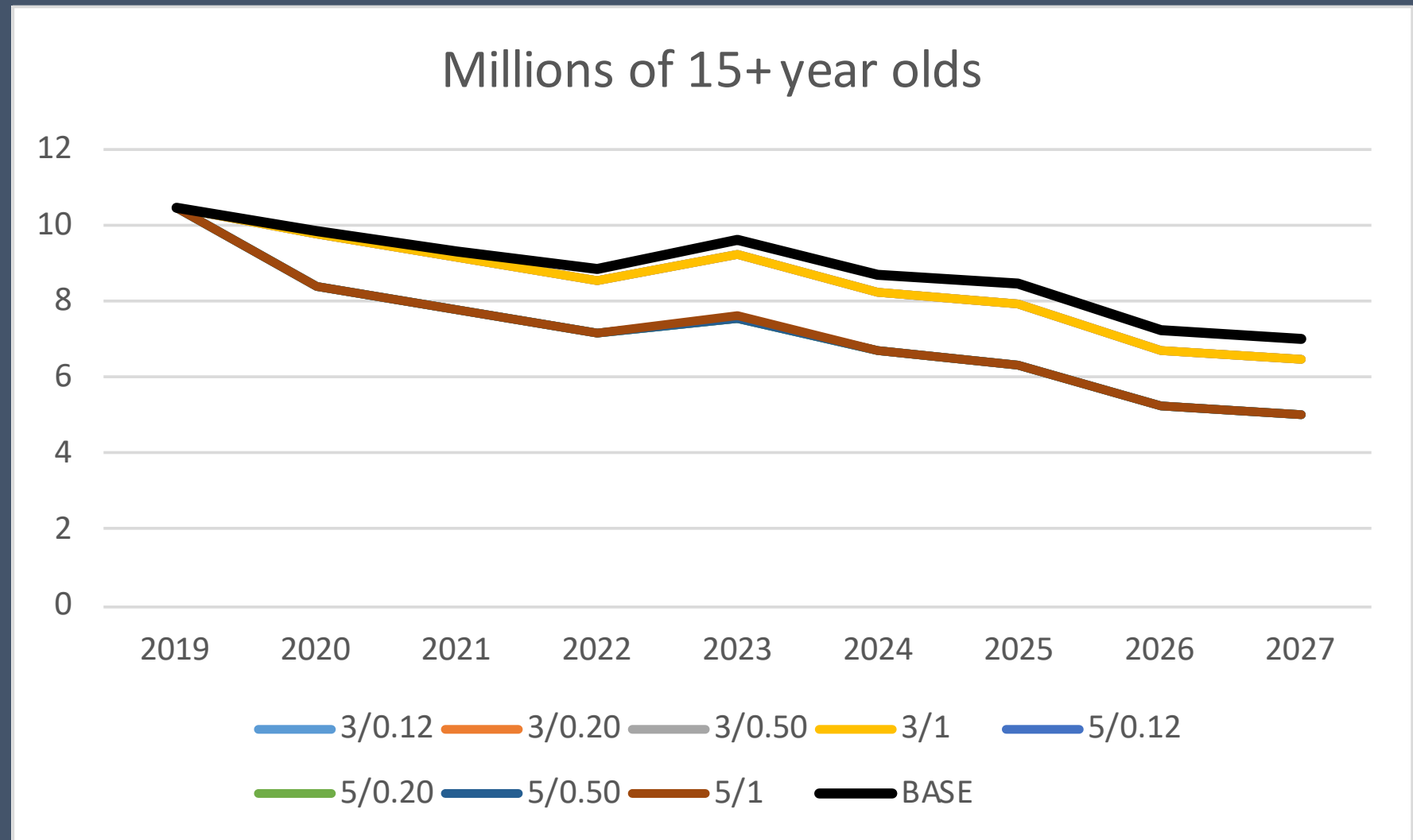
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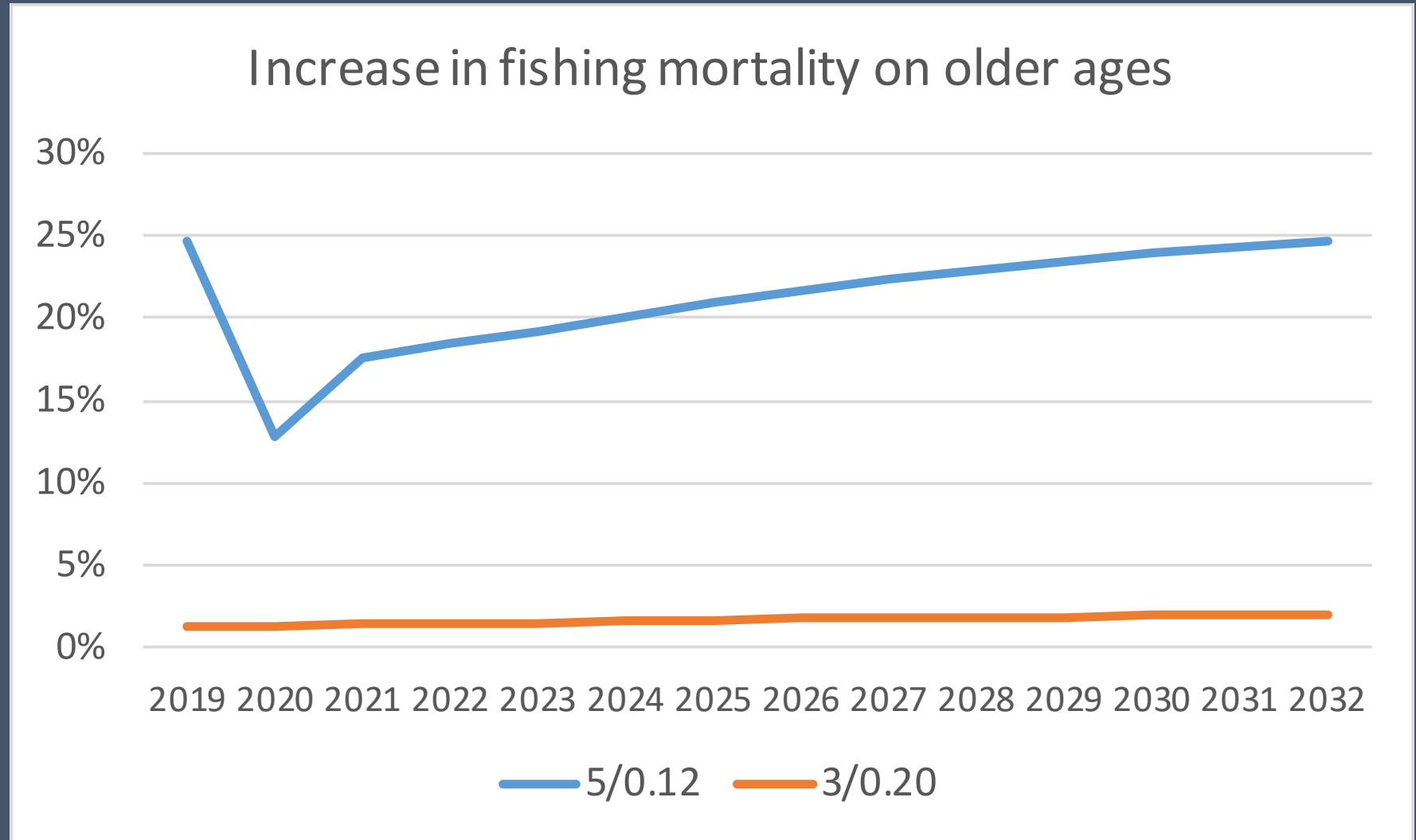
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Conclusions

- Wide range of offsetting issues
 - Trading in low value catch for potentially improved prospects
 - Gains in catch value needed to make up for catch that is discarded
 - Adaptation to on-the-water conditions
 - Variables that contribute to discarding decision
- Challenges
 - monitoring and reporting mechanisms
 - data quality
 - managing the fishery
 - in-season
 - specifications
 - real-time accounting
 - vessel-by-vessel basis

Conclusions

- Special provision?
 - onboard methods
 - quantity, weight, length, and release condition
 - tagging program to improve DMR estimation
 - hook-and-line and pot gear
 - multiple area
 - vessel classes.
 - Restrict to operations able to support vessel-level monitoring criteria
- Alternatively, ...
 - Everyone in IFQ program agrees to a general reduction
 - Reduction minimizes cost
 - Reduction includes various provisions to account for risk