

D1 Small Sablefish Release

Staff Update, June 2023



Sara Cleaver, Council Staff

Action:

1. Review staff update paper
2. Provide direction on prioritizing next iteration of analysis



History of Action (p3)

Apr 2018

- IFQ fishermen provide Council testimony regarding influx of small, low-value sablefish in catch.
- Council initiates a discussion paper on a proposal to release small sablefish.

Oct 2018-
Dec 2019

- Council reviews 3 discussion papers on the small sablefish release issue.

Dec 2019

- Council adopts a purpose and need statement and develops alternatives to initiate analysis.

Feb 2021

- Council receives initial review analysis
- SSC recommends additional analyses before final action
- Council postpones action until IFQ Committee can review analysis.

Apr 2021

- IFQ Committee considers small sablefish release a high priority.



History of Action (cntd)

Oct 2021

- Council directs staff to prepare and schedule second initial review analysis when time and resources allow.

Apr-Jun 2022

- IFQ Committee and Council support scheduling next initial review as staff resources allow.
- Council noted that discussion about a minimum size limit (MSL) for sablefish retention should not be considered in the revised analysis.

Dec 2022

- Council ED indicates the Council could expect to receive an update on small sablefish release for June 2023

Jun 2023

- Staff update document review at Council



Purpose and Need, p5

Dec 2019



Large year classes of sablefish result in significant catches of small sablefish in the IFQ fixed gear fisheries. Small sablefish have low commercial value and current regulations require IFQ holders to retain all sablefish. Available data suggest that survival rates for carefully released sablefish are high. Operational flexibility to carefully release sablefish may increase the value of the commercial harvest and allow small fish to contribute to the overall biomass.

Alternatives, p5

Alternative 1, No Action

Under the No Action alternative, all regulations and FMP language related to a prohibition on discarding sablefish would remain intact.

Alternative 2, Allow Voluntary Careful Release of Sablefish in the IFQ Fishery

Eliminate the regulatory restrictions that prohibit release of sablefish caught by sablefish IFQ vessels as well as the FMP provision prohibiting discarding.

Element 1: DMRs

Apply a DMR to discarded sablefish of:

1. 5%
2. 12%
3. 16%
4. 20%

Sub-option: Select different DMRs for pot gear and hook and line gear

Element 2: Catch Accounting

Option 1: Sablefish discards will be estimated using observer and EM data with a DMR applied annually as part of the specifications process.

Option 2: Sablefish discards will be estimated pre-season based on AFSC longline survey encounter rates of sub-three pound sablefish with the DMR applied annually as part of the specifications process.

Element 3: Discard Mortality Accounting

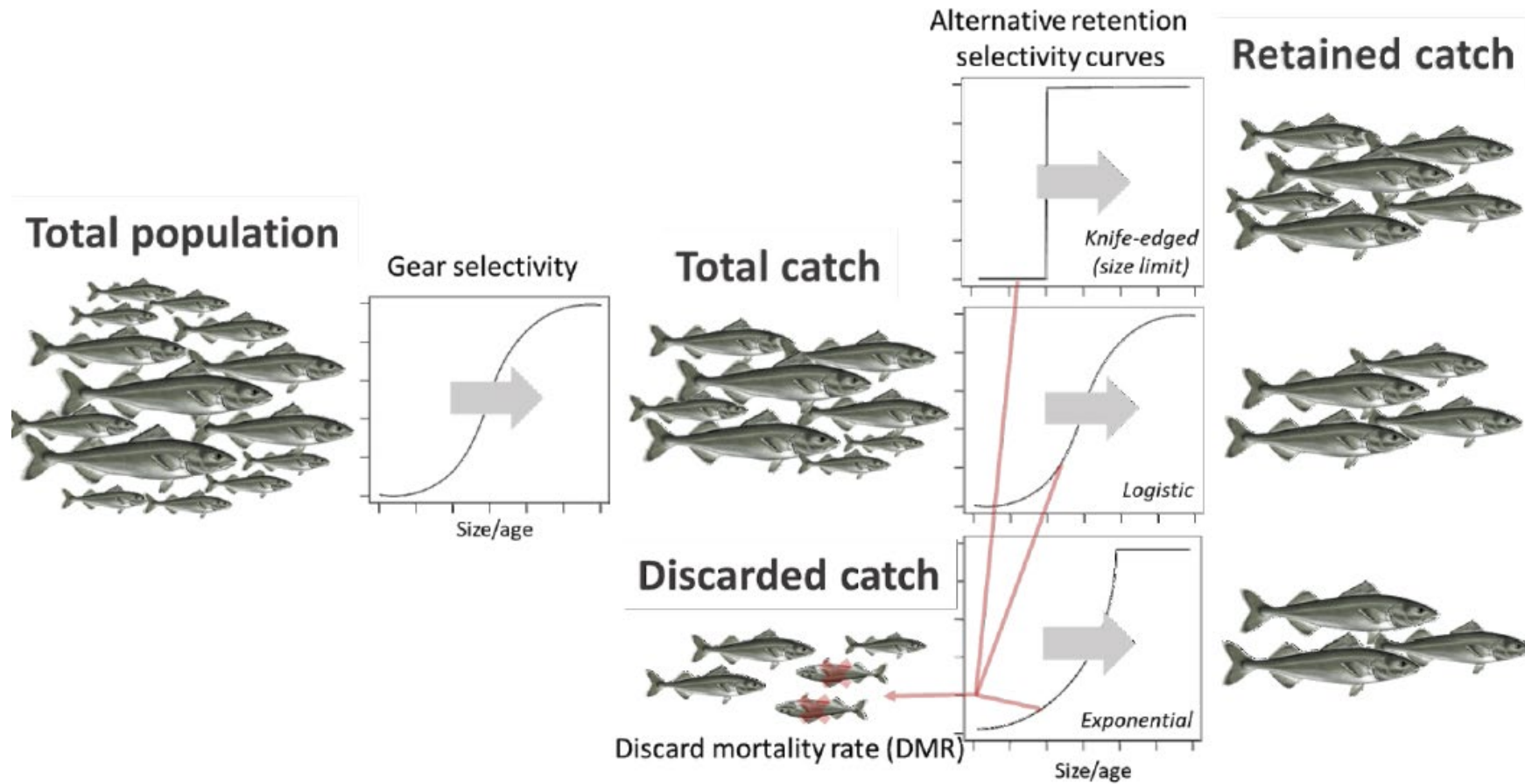
Sablefish discard mortality associated with the IFQ fishery will be accounted for in the stock assessment. The analysis should describe the potential implications of voluntary discards on the sablefish stock assessment and specifications process.

Element 4: Monitoring and Enforcement

The analysis should describe potential monitoring and enforcement provisions that could improve estimates of voluntary and regulatory discards.



Setting the Stage: Retention Selectivity



Summary of Findings from Initial Review Analysis (Feb 2021), p6

- Continued decline in market prices for smaller sablefish → poor economic conditions in fishery
- Stock related (spawning biomass) and economic (yield, ex-vessel value) impacts dependent upon size of fish discarded and DMR.
- Increasing harvest of large sablefish would put increasing pressure on spawning biomass.
- Voluntary discards would increase uncertainty in stock assessment, likely decrease in ABC
- Impacts vary based on management area based on differences in population size distribution



SSC Recommendations (February 2021) (p4)

The SSC concluded that there are two unresolved questions that are central to understanding the effects of the proposed amendment:

1. What is the impact on the age structure and overall productivity of the stock under different rates of discard mortality and for different gear and discard selectivity profiles?
2. What is the impact on the uncertainties in the stock assessment, and the required buffers in setting ABC, arising from knowledge gaps introduced by not knowing gear selectivity or discard selectivity and mortality in a mostly unobserved fishery?

“The SSC recognizes that this analysis provides the basis for a time-sensitive action, but the SSC concluded that the analysis does not fully address these questions and recommends that the draft amendment is not ready for final action”



JUNE 2023 UPDATE PAPER

- Changes in Stock Status
- Fishery and Market Updates
- Comparison of Yield Per Recruit / Knuckey Analyses
- Monitoring Considerations for Estimating Discards
- Discard Mortality Rate (DMR) Considerations
- Stock Assessment Considerations and Effects on Uncertainty
- Tradeoffs and Workload Considerations / Next Steps

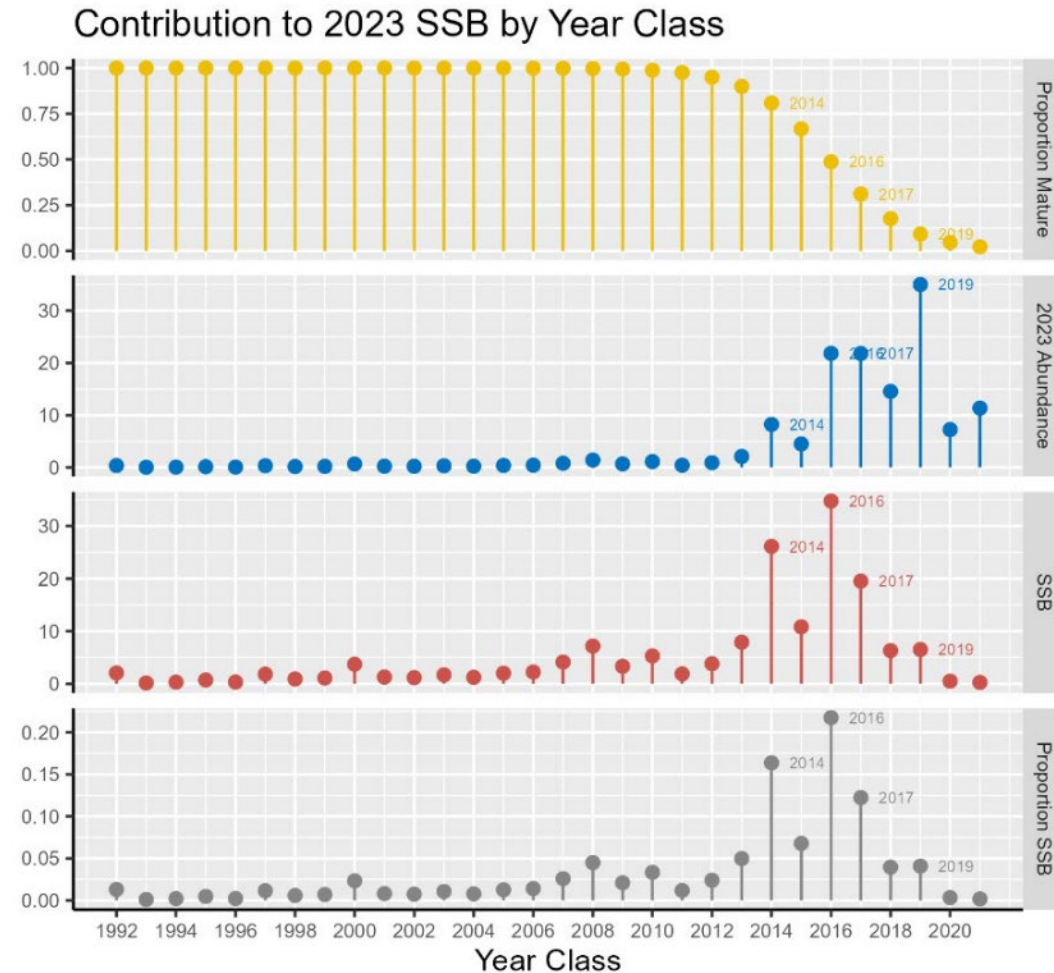


Stock Status Updates, p6

- similar increasing population trends as in 2021
- decline in older, fully mature fish and fully grown fish since 2011
- uncertainty for recent recruitment estimates, cohorts need to survive to maturity to ensure long-term productivity



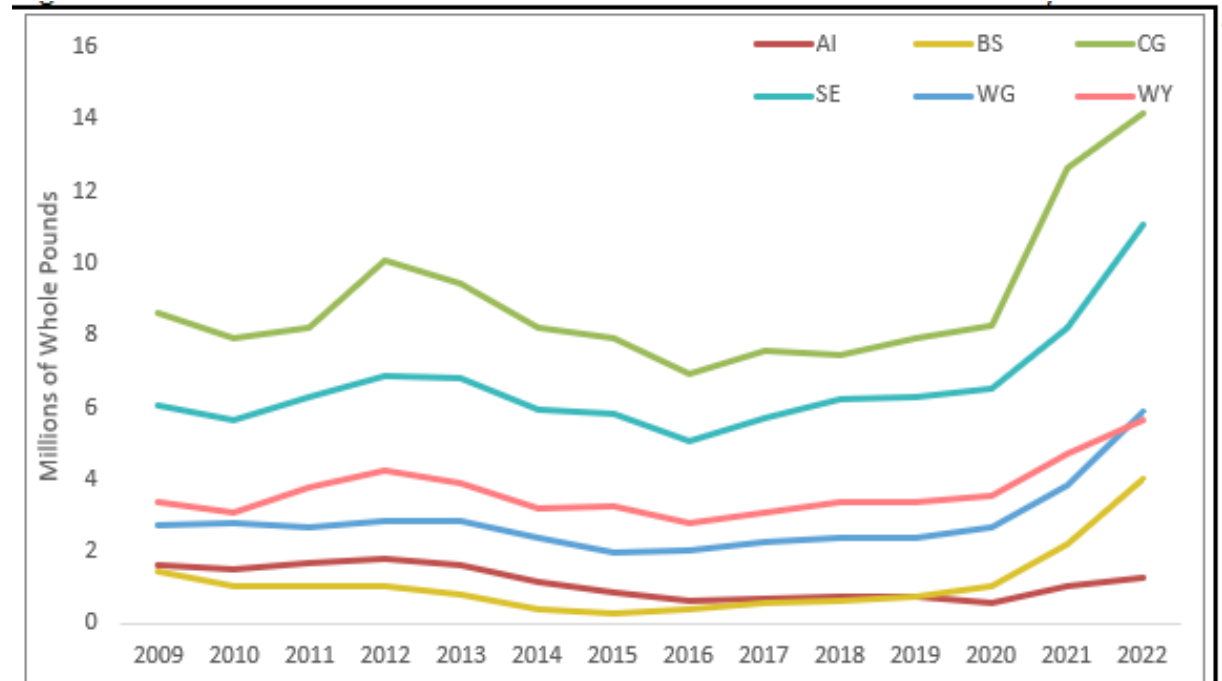
Figure 2



Fishery and Market Updates, p9

- Increasing shift from HAL to pots in response to whale depredation concerns
- Large increases in ABC and catch
- Catch/ABC is lower in recent years: in 2022, 63% of the total quota was harvested compared to 87% in 2016.

Figure 4, sablefish IFQ landings



Fishery and Market Updates, cntd

Figure 4, ex-vessel value

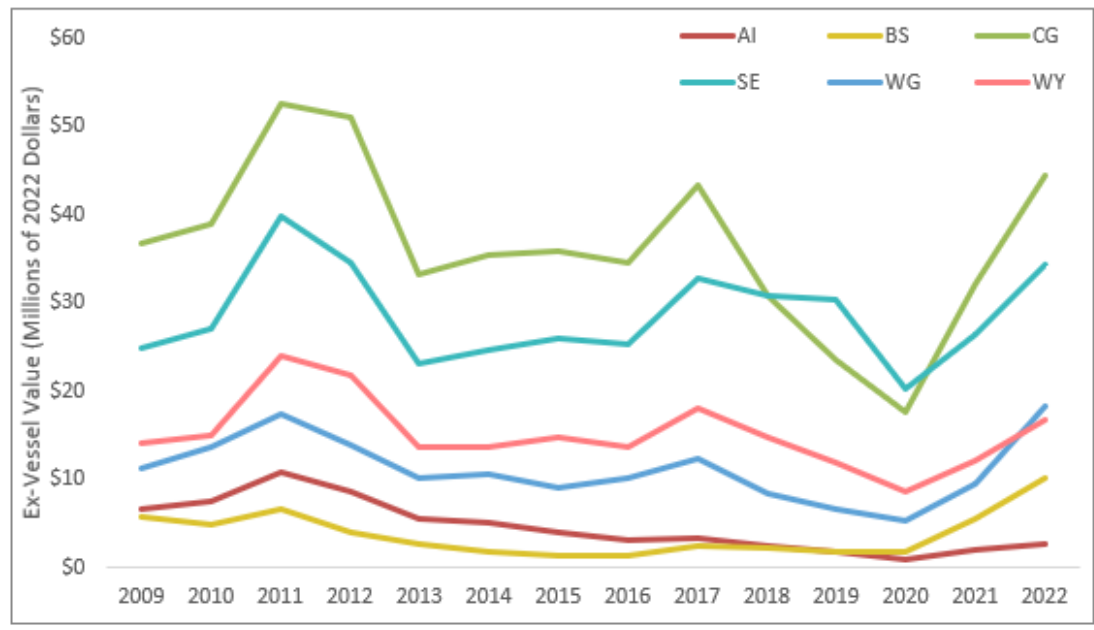


Table 1

Average Ex-vessel value per trip by management area in 2022 dollars. Source: ADFG/CFEC Fish Tickets, data compiled by AKFIN in Comprehensive FT.

| Year | AI | BS | CG | SE | WG | WY | All Areas |
|-------|----------|----------|----------|----------|-----------|----------|-----------|
| 2010 | \$79,801 | \$28,953 | \$63,857 | \$49,768 | \$76,253 | \$71,891 | \$59,350 |
| 2012 | \$79,071 | \$26,112 | \$79,399 | \$56,962 | \$69,052 | \$93,327 | \$68,727 |
| 2013 | \$65,182 | \$21,384 | \$49,161 | \$40,748 | \$50,041 | \$61,640 | \$47,107 |
| 2014 | \$65,696 | \$17,844 | \$59,128 | \$46,504 | \$62,399 | \$66,916 | \$54,302 |
| 2015 | \$56,272 | \$17,031 | \$61,057 | \$46,401 | \$48,536 | \$65,770 | \$53,326 |
| 2016 | \$57,246 | \$19,221 | \$53,612 | \$48,135 | \$51,641 | \$61,885 | \$51,395 |
| 2017 | \$59,528 | \$30,700 | \$64,334 | \$54,758 | \$67,321 | \$82,503 | \$62,053 |
| 2018 | \$37,114 | \$33,136 | \$39,936 | \$44,628 | \$47,262 | \$58,214 | \$44,164 |
| 2019 | \$27,685 | \$23,623 | \$34,888 | \$44,038 | \$43,123 | \$43,892 | \$39,390 |
| 2020 | \$22,936 | \$27,754 | \$29,001 | \$26,621 | \$44,952 | \$30,402 | \$29,073 |
| 2021 | \$42,524 | \$51,450 | \$52,201 | \$31,586 | \$86,882 | \$40,321 | \$43,466 |
| 2022 | \$82,566 | \$80,806 | \$67,312 | \$39,770 | \$119,333 | \$54,579 | \$59,121 |
| Total | \$58,936 | \$32,877 | \$54,223 | \$43,186 | \$62,922 | \$59,260 | \$50,879 |



Fishery and Market Updates, cntd

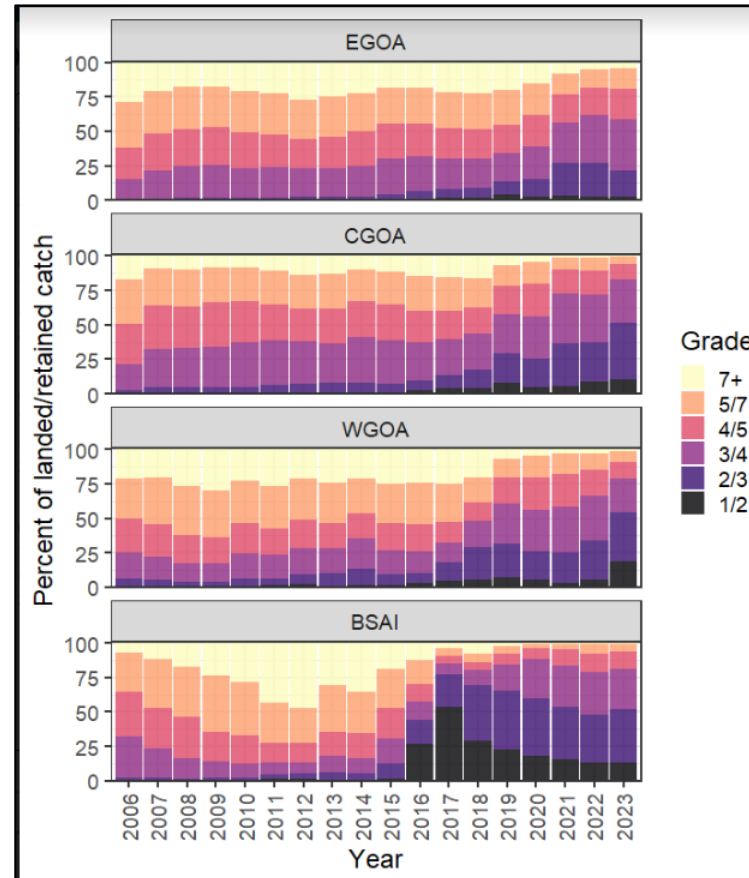
Table 2 Alaska-wide average sablefish processor size grade prices accessed from AKFIN on May 12, [2023](#) and includes landings data through April 2022. Data were limited to sablefish landed in the IFQ/CDQ management programs by pot and hook-and-line gear. Prices were weighted by catches within FMP subarea, in 2022 dollars. Note that data from 2023 are incomplete and may not be comparable to annual data in previous years.

| <i>Year</i> | <i>Grade 1/2</i> | <i>Grade 2/3</i> | <i>Grade 3/4</i> | <i>Grade 4/5</i> | <i>Grade 5/7</i> | <i>Grade 7+</i> |
|-------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------|
| 2015 | \$4.30 | \$4.46 | \$5.74 | \$6.67 | \$8.21 | \$9.49 |
| 2016 | \$4.75 | \$5.18 | \$6.24 | \$7.14 | \$8.82 | \$10.78 |
| 2017 | \$5.33 | \$6.28 | \$7.64 | \$8.79 | \$10.04 | \$11.37 |
| 2018 | \$1.66 | \$3.09 | \$4.51 | \$5.66 | \$8.89 | \$9.82 |
| 2019 | \$1.60 | \$2.43 | \$3.42 | \$4.56 | \$7.46 | \$8.77 |
| 2020 | \$0.50 | \$1.53 | \$2.21 | \$2.82 | \$4.41 | \$6.92 |
| 2021 | \$1.09 | \$2.30 | \$2.94 | \$3.39 | \$4.49 | \$6.71 |
| 2022 | \$0.96 | \$2.02 | \$2.79 | \$4.26 | \$7.03 | \$8.17 |
| 2023 | \$0.64 | \$1.29 | \$1.84 | \$2.63 | \$5.49 | \$6.73 |



Fishery and Market Updates, cntd

Figure 7 Sablefish processor size grade compositions (percent of landed catch by size grade) by management area. Each panel represents a management area processor size grade. Data accessed from the Alaska Fisheries Information Network (AKFIN) on May 12, 2023 includes landings data through April 2023. Note that data from 2023 are incomplete and may not be comparable to complete annual data in previous years. Data were limited to sablefish landed in the IFQ/CDQ management programs by pot and hook-and-line gear.



Comparison of YPR / Knuckey Analyses (p14)

NPFMC 2021

≤ 3 lbs *dressed weight* = 4.76 lb fish (whole/round lbs)
=58 cm (22.8 in fork length, 24 in total length)

Lower bound of grade 3/4 fish

Evaluated retention selectivity scenarios:

- Full retention, knife-edged (minimum size limit), logistic, exponential

DMRs between 5% and 100%

Knuckey

≤ 3 or ≤ 3.5 whole/round lbs = 1.9lb dressed $\sim 2 \times$ dressed
=50cm fork length, 21 in total length

Grade 1/2 fish

Minimum size limit

DMR of 11.7% (based on Stachura 2012), 10, and 25%

Both found under low DMRs and MSL, small increase in yield and fishery value under long-term average conditions



Monitoring Considerations for Estimating Discards (p15)

Ensuring accurate catch accounting in Council-managed fisheries

- To reduce waste and account for catch, Council recommended retention requirements for IFQ when it built the IFQ Program
- Requiring retention allows for accurate catch accounting and debiting of IFQ accounts
- Because full retention of sablefish is a fundamental design provision of the IFQ Program, monitoring and enforcement would need to be modified for accurate catch accounting and to collect fishery information necessary to estimate discards.



Monitoring Considerations for Estimating Discards (p16)

Estimating Discards in the Sablefish IFQ Program

- Accurate estimates of catch are needed for inseason mgmt. and assessment
- Majority come from observer data, which are limited in sablefish IFQ fishery (p16)
 - Observers collect # and size of fish on total (unsorted) catch. Current protocols do not allow for separate retained/discarded. Would require major changes to protocols at the cost of other monitoring priorities
 - EM data could provide # of fish discarded, but not size.
- Current assumption used is that weight distribution of discards is similar to that of retained catch. (due to full retention requirement).
 - Enables estimation of size distribution and amount of total fishery removals



Discard Mortality Rate (DMR) Considerations (p18)

Council alternatives (5, 12, 16, 20%) are proxy values assessed and described in previous discussion papers.

Some of these are used by other agencies or regions.
None account for post-release depredation by whales

DMR for Alaska sablefish IFQ fishery would need to be scientifically established.



Requirements applicable to sablefish discarding in other regions/fisheries (Appendix 2)

| Region | Management program | Gear type | Regulations related to discarding (e.g., size limits, escape rings, application to quota) | At-sea monitoring | Port sampling |
|---|-------------------------------|-----------------------|---|--|--|
| Alaska (federal waters) | Individual Fishing Quota | Hook-and-line | Mandatory full retention, no size limit, no discarding allowed | Mix of zero coverage (<40 foot vessels), observers (target in 2022: 19%), and EM (target in 2022: 30%). | None |
| Alaska (federal waters) | Individual Fishing Quota | Pot | Mandatory full retention, no size limit, no discarding allowed | Mix of zero coverage (<40 foot vessels), observers (target in 2022: 19%), and EM (target in 2022: 30%). | None |
| Alaska (state waters, Chatham Strait and Clarence Strait) | Equal Quota Share | Hook-and-line and Pot | Voluntary release, no size limit, 3.75" escape rings required on all pots, flea bitten or dead fish must be retained. "A permit holder must retain all visibly injured or dead sablefish. Sablefish that are not visibly injured or dead may be released unharmed, but the permit holder must record the live releases in a logbook by gear settings." | None | Yes -- during Mark-Recap years, as many landings as possible are sampled. For all other years, we sample Mon-Fri work hours. |
| British Columbia | Individual Transferable Quota | Pot | All traps (pots) require two 3.5-inch escape rings. MSL of 55 cm (approx. 21.65 in.) . (Sablefish smaller than 55 cm fork length are released). No quota deductions applied to releases of sub-legal fish (0% DMR). Legal sized sablefish released= 100% DMR (100% of discards apply towards quota). | EM. 10% of hauls are video reviewed and tested against logbooks. It is up to fishery manager discretion to determine if 100% video review is required. | 100% dockside monitoring provided by third party service provider |
| British Columbia | Individual Transferable Quota | Hook & Line | MSL of 55 cm (approx. 21.65 in.) . (Sablefish smaller than 55 cm fork length are released). No quota deductions applied to releases of sub-legal fish (0% DMR). Legal sized sablefish released= 100% DMR (100% of discards apply towards quota). Exception is troll gear for which there is a DMR of 15% for legal sized sablefish. | EM. 10% of hauls are video reviewed and tested against logbooks. It is up to fishery manager discretion to determine if 100% video review is required. | 100% dockside monitoring provided by third party service provider |

Requirements applicable to sablefish discarding in other regions/fisheries (Appendix 2)

| Region | Management program | Gear type | Regulations related to discarding (e.g., size limits, escape rings, application to quota) | At-sea monitoring | Port sampling |
|------------|--|-----------------------|---|---|---|
| West Coast | Limited Entry/Individual Fishing Quota | Trawl | Discarding allowed for all IFQ vessels except "shoreside whiting" vessels (land >50% hake/whiting) engaged in maximized retention. Maximized retention allows for the discard of minor operational amounts of catch at sea if the observer has accounted for the discard. All IFQ discards count towards quota with 100% mortality applied to fish < 28 cm (age-0 fish) and 50% mortality rate applied to fish >= 28 cm | 100% observed with a human observer or EM. ~20% of EM trips also carry observer. Vessels 125 ft or longer engaged in at-sea processing (e.g., at-sea whiting catcher-processors and motherships) must carry two observers; all others must carry one. | 100% dockside catch monitoring provided by third party service provider to verify landings, as well as generally less than 100% port sampling of biological data by DFW |
| West Coast | Limited Entry | Hook-and-line and Pot | Discarding allowed, discards count towards quota with 100% mortality applied to fish < 28 cm (age-0 fish) and 20% mortality rate applied to fish >= 28 cm | About 30% coverage on average with observer but varies depending on WCGOP capacity. Vessels 125 ft or longer engaged in at-sea processing must carry two observers; all others must carry one. VMS required when fishing in federal waters. | Generally less than 100% port sampling of biological data by the respective state departments of fish and wildlife |
| West Coast | Open Access | Hook-and-line | Discarding allowed, 100% mortality applied to observed discarded fish < 28 cm (age-0 fish) and 20% mortality rate applied to fish >= 28 cm | About 5% coverage on average with human observer but varies depending on WCGOP capacity. VMS required when fishing in federal waters. | Generally less than 100% port sampling of biological data by the respective state departments of fish and wildlife |



Stock Assessment Considerations / Effects on Uncertainty (p18)

- Under a voluntary release scenario:
 - Data from limited # of observed trips (see Table 3) may not be sufficient to provide an accurate estimate of discards
 - gets extrapolated to unobserved trips, leads to uncertainty in the assessment
 - Challenging to estimate the retention curve (#s/sizes of fish retained) without appropriate monitoring
- Minimum size limits can provide some information on size of fish discarded.
- Shifting a portion of fishing effort to older population (larger fish) will likely require reductions in ABC to ensure no overharvesting.



Tradeoffs and Considerations (p20)

- Ability to estimate a retention selectivity curve is based on monitoring capabilities
 - changes to observer sampling would mean other data collections would be reduced.
- MSL could alleviate some of the needs for monitoring changes
- Expansion of EM could result in further loss of biological and length data
- Different scenarios of monitoring and discarding lead to differing levels of uncertainty in assessment
- Shifting effort to larger fish will require adjustments in ABC
- Current harvest control rules do not account for shifting fishery effort to larger, older fish



Next Steps for Council Action (p23)

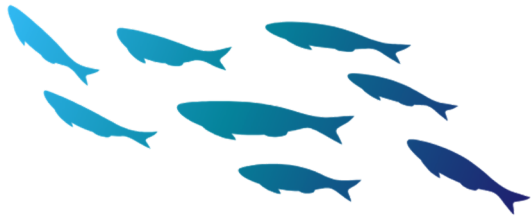
Options:

- Redirect/revise Alternative 2
 - Could require release of sablefish smaller than a minimum size limit, which would need to be specified.
 - Alternative 2 could be redirected in other ways as well
- Proceed with the current action, to evaluate a voluntary release option, and direct staff to bring back a second initial review analysis.
 - several options and decision points (see p23-24):
 - Extent of addressing SSC recs (redirect resources from other stock assessment related work)
 - Changes to monitoring protocols, or accept uncertainty within the stock assessment without backfilling data loss from unmonitored discards
- Direct staff to stop working on the proposed action.



Contributors & Reviewers

- Chris Lunsford
- Dr. Dan Goethel
- Jane Sullivan
- Jennifer Ferdinand
- Jennifer Cahalan
- Phil Ganz
- Mason Smith
- Alicia M. Miller
- Diana Evans



Questions?

Sara Cleaver

Sara.cleaver@noaa.gov

907-271-2809

Extra slides



| Scenario | Fork_length_in | Total_length_in | Round_weight_lb | Dressed_weight_lb | Grade | Fork_length_cm | Total_length_cm |
|---|----------------|-----------------|-----------------|-------------------|-----------|----------------|-----------------|
| 20" total length MSL | 18.5 | 20.0 | 2.5 | 1.6 | Grade 1/2 | 47.0 | 50.7 |
| 3 round lb (assumed in Knuckey 2021) | 19.7 | 21.2 | 3.0 | 1.9 | Grade 1/2 | 50.1 | 53.7 |
| 22" total length MSL | 20.6 | 22.0 | 3.4 | 2.1 | Grade 2/3 | 52.3 | 55.9 |
| 24" total length MSL | 22.6 | 24.0 | 4.5 | 2.9 | Grade 2/3 | 57.5 | 60.9 |
| 3 dressed lb (assumed in 2021 staff analysis) | 23.0 | 24.4 | 4.8 | 3.0 | Grade 3/4 | 58.5 | 61.9 |

| Grade | Definition |
|-----------|------------------------------------|
| Grade 1/2 | < 2 dressed lb |
| Grade 2/3 | >= 2 dressed lb and < 3 dressed lb |
| Grade 3/4 | >= 3 dressed lb and < 4 dressed lb |
| Grade 4/5 | >= 4 dressed lb and < 5 dressed lb |
| Grade 5/7 | >= 5 dressed lb and < 7 dressed lb |
| Grade 7+ | >= 7 dressed lb |



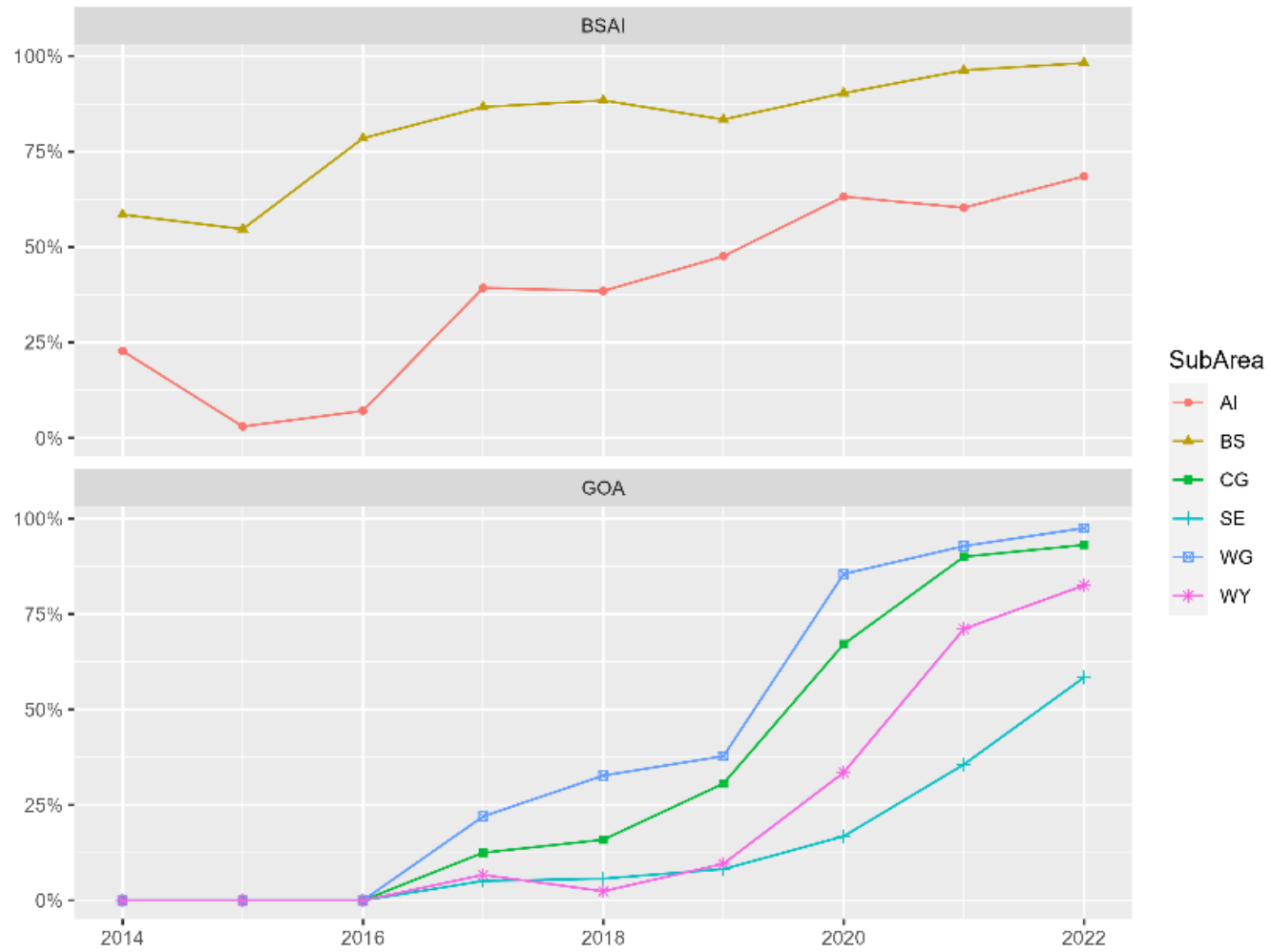


Table 4. Increasing stock assessment uncertainty under a range of discarding and monitoring scenarios, including mandatory full retention (status quo) and voluntary discards with at-sea observers. Results are presented in terms of the stock assessment’s capability to estimate gear selectivity, retention selectivity, and discard mortality rate (DMR), where green means variables can be estimated, red means they cannot be estimated, and yellow means they can be estimated with some increased uncertainty.

| Scenarios | Data used in stock assessment | Ability to estimate: | | | Example |
|--|--|------------------------------------|---|-------------------------------------|-----------------------------------|
| | | <i>Gear selectivity</i> | <i>Retention selectivity</i> | <i>Discard mortality rate (DMR)</i> | |
| Mandatory retention with at-sea observers | Age or length compositions from the total catch | Yes | Not needed | Not needed | Status quo |
| Voluntary discarding with at-sea observers paired with shoreside sampling | Age or length compositions from the retained catch <i>and</i> the total catch (retained + discarded) | Yes | Yes | No | BSAI king, snow, and tanner crabs |
| Minimum size limit with at-sea observers | Age or length compositions from the total catch (retained + discarded) | Yes | Assume full retention at minimum size limit | No | -- |
| Voluntary discards with at-sea observers only | Age or length compositions from the total catch (retained and discarded) | Yes (but may increase uncertainty) | No | No | -- |
| Voluntary discards with shoreside sampling only | Age or length compositions from the retained catch | No | No | No | Chatham Strait sablefish |

Increasing stock assessment uncertainty





Figure 2-10 A simplified diagram depicting the annual cycle of data collection, stock assessment, ABC determination, and harvest specifications under two alternative voluntary discard programs with only at-sea observers or at-sea observers with supplementary shoreside sampling. Data informing catch accounting and stock assessments are highlighted in dark blue and key sources of uncertainty are highlighted in red.

Annual cycle under alternative voluntary discard programs

