



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 8, 2020
To: Council
From: J. Didden, staff
Subject: Decision Memo and wrap-up analyses.

This memo highlights the decisions before the Council, staff's understanding of the rationale behind the Committee recommendations to take action, as well as some wrap-up analyses resulting from the June 2020 Committee meeting and subsequent FMAT discussions. If staff is missing any rationale or has misinterpreted any rationale, then the Council can advise us during the July 2020 Council Meeting. This document supplements the April and June 2020 Committee meeting summaries, as well as other briefing materials for the July 2020 Council Meeting.

1. Potential Modifications for *Illex* Limited Access

The Council previously approved the alternatives in the Public Hearing Document, and the Committee recommended a simplified set of five alternatives for final consideration. As described in the summary of the April 2020 MSB Committee Meeting, and then with #4 modified and identified as recommended by the MSB Committee at its June 2020 meeting, the simplified set of alternatives would be:

- #1. No action. (75 Permits)
- #2. 51 requalifiers: 1997-2019 @ 50 K pounds¹ (no Tiering)
- #3. 13 requalifiers: 1997-2013² **plus** 2014-2019 w/1,000,000 pounds **each** (no Tiering)
- #4. 35 requalifiers: Tier 1 - 1997-2013 @ 500 K pounds
13 requalifiers: Tier 2 - 1997-2018 @ 100 K pounds (62,000-pound trip limit)
02 requalifiers: Tier 3 - 1997-2018 @ 50 K pounds (20,000-pound trip limit)
25 of 75 permits would not requalify for any Tier

¹ All qualification criteria would be based on live pounds, which only slightly altered the number of estimated qualifying vessels from the Public Hearing Document.

² In addition to communications previously discussed regarding the control date, GARFO staff noted that from 2014-2019 the 2013 control date was highlighted in annual permit application packages

A vessel is also eligible for a Tier 1 permit under #4 if it purchased and can document a refrigerated seawater system, plate freezing system or blast freezer and had it installed between January 1, 2012 through the control date of August 2, 2013, AND the vessel landed a minimum of 200,000 lbs of *Illex* in the 2013 fishing year, ending December 31, 2013.³

- #5. 42 requalifiers: Tier 1 - 1997-2013 @ 500 K pounds **OR** 2014-2019 @ 1 M pounds
- 07 requalifiers: Tier 2 - 1997-2019 @ 100 K pounds (90K trip limit)
- 02 requalifiers: Tier 3 - 1997-2019 @ 50 K pounds (47K trip limit)
- 24 of 75 permits would not requalify for any Tier

The FMAT (primarily John Walden, NEFSC) conducted several follow-up analyses to further quantify capacity for the above alternatives. The analyses support that the fishery has substantial excess capacity, and that most of the alternatives will retain substantial excess capacity compared to the current quota. Since information on the vessels that would not qualify for alternative #2 is more uncertain, the capacity analyses were only conducted for the action alternatives. Those vessels, if activated, would increase the capacity estimates further.

Table 1. Capacity from Action Alternatives

Alternative	<i>Illex</i> Capacity (MT) based on a Static Number of Trips
#2	58,526
#3	29,574
#4	56,128
#5	57,803

The total capacity estimates shown in the table above, were based on a static number of trips (i.e. the number of trips each vessel took was held equal to 2019 levels), and a physical definition of capacity. For vessels that were not active in 2019, their capacity scores are taken from the average per vessel trip capacity for their vessel type in 2019 vessels, and the average number of trips that those vessel types took in 2019. The physical capacity estimates are based on the fixed vessel attributes, which in this case are length, horsepower, tonnage and hold capacity. The model used for this estimate has been used worldwide by the FAO, and also NMFS, to estimate vessel capacity. If trips increased, so would the capacity estimates. In 2019, the time period from May 15 until closure August 21 was 14 weeks. If the fishery had run another 4 weeks for a total of 18 weeks, that would have expanded the season by approximately 29%. If trips had expanded likewise had the quota not shut the fishery down, the capacity estimates would increase similarly.

³ It is not possible to predict which permits may ultimately qualify under this provision, so it can not be used to assign predicted qualification status, but it is expected to potentially apply to only a few permits.

The FMAT also used observer data on costs to estimate a cost based per-trip capacity to compare against the trip limits being considered for Tier 2 in alternatives #4 and #5. The cost based estimates show the landings per trip needed to minimize a vessel's average total cost. This is termed the "optimal scale", or the point of minimum average total cost. Reported costs from sea sampled data were the basis of trip costs used in the "low cost estimates" scenario. "High cost" estimates doubled those costs since the observer data is likely missing some costs. Also included are depreciation and the opportunity cost of capital based on a previous study J. Walden published in Marine Policy, which did not change between scenarios. Physical per-trip capacity used to estimate total capacity above is also shown as for comparison purposes.

Table 2. Trip Capacities

	Physical Capacity (lbs per trip)	High Cost Capacity (lbs per trip)	Low Cost Capacity (lbs per trip)
Alternative 4			
Tier 1 Vessels	233,426	202,054	217,883
Tier 2 Vessels	91,620	89,812	102,980
Alternative 5			
Tier 1 Vessels	217,201	188,095	204,571
Tier 2 Vessels	76,677	85,040	91,972

For alternatives 4 and 5, Tier 2 vessels would not be allowed to land at their minimum cost point, meaning they are being made more inefficient. In order to meet the proposed quotas, it is likely that all vessels would need to be made less efficient. The physical definition of capacity for Tier 2 vessels is also higher than the proposed trip limits, again underscoring the finding that Tier 2 vessels will be made less efficient under this proposal. Under alternatives 4 and 5, given the capacity of the Tier 1 vessels without trip limits, the race to fish will remain.

These results are consistent with the public hearing document that this action will not completely solve the issue of excess capital/capacity and racing to fish in the *Illex* fishery. However, they do confirm that there is excess capacity in the *Illex* fishery and that from a biological perspective, OY should be attainable by the fleets. The TAC for the fishery will cap overall output, and therefore fleet capacity is capped. It is unlikely that the remaining vessels will have the opportunity to land their potential capacity, since that would exceed the quota. Furthermore, tier 2 vessels under alternatives 4 and 5 are explicitly made less efficient through the proposed trip limits, while Tier 1 vessels are not constrained.

It is staff's understanding that the Committee's recommendation is designed as at least one step to freeze the fishery's "footprint" and avoid the existing excess capacity problem from getting even worse. Issues identified in the Public Hearing Document (with references) or by the Committee as problems from not taking action, and reasons to take action include:

- Worsening of the race to fish beyond the inherent incentives for a seasonal fishery.

- With racing to fish, fishery participants typically use more and more capital and/or effort in an increasingly rushed attempt to catch a limited quota before closure, increasing costs until profits are dissipated, creating a loss of efficiency.
- Safety at sea: Racing to fish may lead to taking more risks related to weather, maintenance, and/or overloading.
- Monitoring difficulties: Higher weekly landings make it more difficult to close the fishery near the quota. The quota was exceeded by about 5% in 2018 and 10% in 2019. Projection method modifications, monitoring changes, and a slightly lower trigger for closing the fishery should lessen the risk of future overages (all of these measures are planned for either 2020 or 2021 implementation). These measures will increase reporting burden and reduce the percent of quota available before the directed fishery closes. Additional overages may lead to more restrictive measures to compensate.
- Yield reduction: Catching the quota earlier may mean that smaller squid are harvested, which means that more individuals are harvested per metric ton, which may reduce yield per recruit and total yield given the fast-growing nature of *Illex*.
- Increased entry/participation risks gear conflicts, as raised in public comments, both from commercial and recreational perspectives.
- Negative effects may accrue to historically dependent and invested communities from early closures, shortened seasons, and/or rapid changes in the distribution of landings among ports. Analyses highlight the dependence of N. Kingston and Cape May, and National Standard 8 guidance requires taking into account the importance of fisheries to fishing communities, and favors alternatives that, all else being equal, provide for the more sustainable participation of, and avoids adverse impacts on, such communities. It is not possible to fully quantify the benefits of reducing dependent community disruption, but it is staff's understanding that this a key component of the Committee's concern.
- Overcrowding in the relatively small fishery area (between coral protection areas and other restricted gear areas inshore).
- Inshore displacement of the historical fleet, which has commented that they (including large vessels) will be forced inshore into the summer longfin squid fishery from continued early *Illex* closures.
- Historical participants have less operational flexibility to engage in other fisheries and are generally more dependent on *Illex*. Staff compared the reduction in revenues for the 51 days before versus after the 2019 closure (on August 21) for the Tier 1 and Tier 2 vessels in the Committee-recommended alternative #4. Combined Tier 1 revenues fell 76% after the closure, while combined Tier 2 revenues fell 32%.

Public comments have stated that this action may conflict with the new Goals and Objectives also recommended by the Committee. Staff's understanding is that the Committee has attempted to balance some of the trade-offs that are inherent and in fact anticipated in the Goals and Objectives,

especially the Objectives within Goal 2; Objective 2.1 highlights freedom, flexibility, and minimizing additional restrictions, “consistent with attainment of the other objectives of this FMP.” Objective 2.3 is “Consider and strive to balance the social and economic needs of various sectors of the MSB fisheries (commercial including shoreside infrastructure and recreational) as well as other fisheries or concerns that may be ecologically linked to MSB fisheries.” Staff’s understanding is that the Committee is attempting to balance such social and economic needs, and this may be a case where the “other objectives” do necessitate additional restrictions. The “operational flexibility” noted in Objective 2.2 has different meaning for different participants, and the Committee recommendation appears to attempt to balance the flexibility for some participants to diversify their revenue sources with the existing lack of flexibility for other participants to engage in other fisheries besides *Illex*, at least at some times of the year.

One of the key tradeoffs involved in this action is that there will be some economic costs to vessels that do not requalify relative to recent performance. The costs relative to the simplified Committee Alternatives #2 (minimal) and #3 (highest) are described in the public hearing documents. Staff developed additional analyses to support the Committee regarding the simplified Committee alternatives #4 and #5, and the FMAT provided additional feedback about those analyses, primarily so that the range of impacts on individual vessels can be better understood. The analyses focus on Tier 2, because the Tier 3 vessels were not active 2017-2019. The completely non-qualifying vessels are also examined for alternative #4, since there may be some vessels with substantial landings in 2019 that will not qualify for any Tier since alternative #4 does not utilize 2019 landings for any qualification. These analyses allow the Council to account for that present/recent participation.

Tier 2 Vessels - 2015-2019

Overall for alternative #4 (13 vessels), if 2015-2019 trips over the proposed 62,000-pound trip limit were limited to 62,000 pounds, the revenue loss represented 1.6% of total combined revenues for these 13 vessels over these five years (\$1.1 million).⁴ Revenues were reduced on a per-trip basis for each vessel’s relevant trips and then summed and compared to each vessel’s total annual revenues. 2015-2016 revenue losses would have been zero. 2017 revenue losses would have been 0.8% of total combined revenues, with a loss range of 0% to 15.0%. 2018 revenue losses would have been 1.5% of total combined revenues, with a loss range of 0% to 3.6%. 2019 revenue losses would have been 4.7% of total combined revenues, with a loss range of 0% to 14.8%.

Overall for alternative #5 (7 vessels), if 2015-2019 trips over the proposed 90,000-pound trip limit were limited to 90,000 pounds, the revenue loss represented a negligible portion of total combined revenues for these vessels. One vessel would have had losses in one year (2018) that amounted to less than 1% of their total 2018 revenues. If 2015-2019 trips over a 62,000-pound trip limit were limited to 62,000 pounds, the revenue loss represented 0.5% of total combined revenues for these vessels. 2015-2016 revenue losses would have been zero. 2017-2019 revenue losses would have been 0.7% of total combined revenues (\$0.2 million), with 4 vessels losing between 0.2% and 3.6% in 1-3 years each.

⁴ Staff confirmed that there are not substantial other species landings revenues on trips that have more than 20% of *Illex* revenues on a trip being affected.

Non-Qualifying Vessels

For alternative #5, no vessels would appear to be impacted – all trips would be below the 10,000-pound incidental trip limit. For alternative #4, there is one vessel that would have a majority of their 2019 revenues impacted. This level of granularity is generally confidential, but the permit owner has stated this in public comments already.

Other Analyses

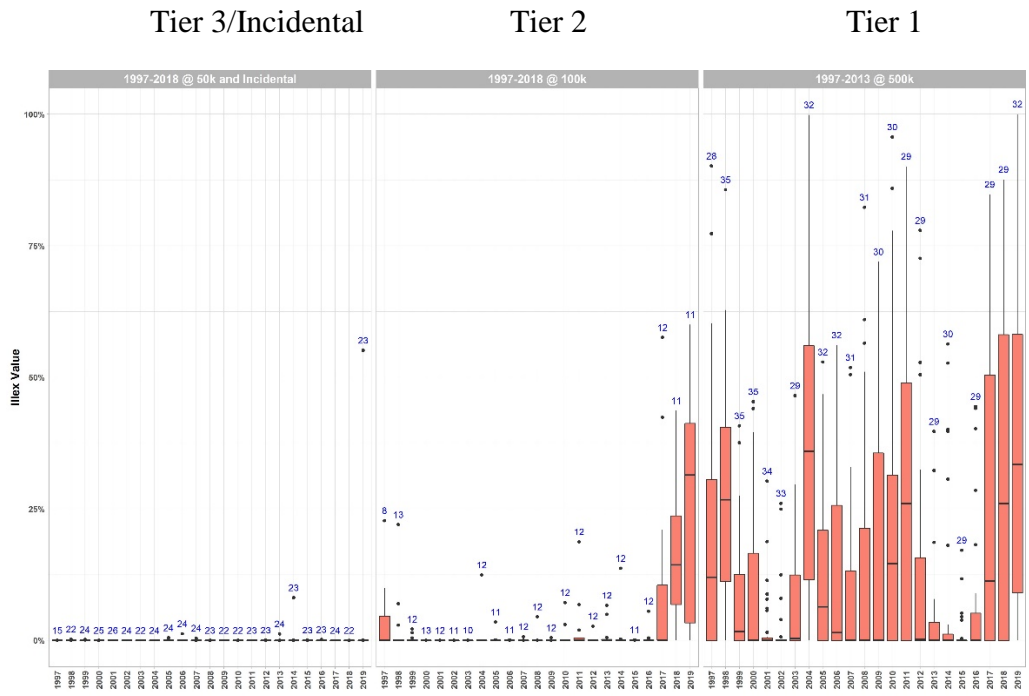
In a similar fashion as the public hearing document, figures for Committee alternatives #4 and #5 were created to describe dependence on *Illex*, other revenue sources, and permit distribution. Those figures are provided below.

In terms of dependence on *Illex* (see Figures 1 and 2), both alternatives #4 and #5 show similar patterns in terms of vessels in higher Tiers generally having greater *Illex* dependence. The primary differences include the 2019 outlier in the lowest group for alternative #4, and that there are more vessels with somewhat higher dependence in alternative #4's Tier 2 versus alternative #5's Tier 2 in the most recent years.

In terms of revenue sources, *Illex* is only a substantial and consistent source of revenue for Tier 1 vessels in both alternatives, but the recent (2017-2019) activity by vessels in the alternative #4 Tier 2 is visible (see Figures 3 and 4).

In terms of other permits held (Figures 5 and 6), the black bar illustrates permits for Tier 1, the medium gray bar for Tier 2, and the light gray bar for Tier 3/Incidental.

Figure 1. MRI *Illex* Revenue Dependencies For Committee Tier #4 Alternative.



(Bar is the interquartile (middle) range (IQR); black horizontal line is the median; vertical lines extend to observations near 1.5 * IQR; outliers are dots; numbers are count of vessels with some revenues)

Figure 2. MRI *Illex* Revenue Dependencies For Committee Tier #5 Alternative.

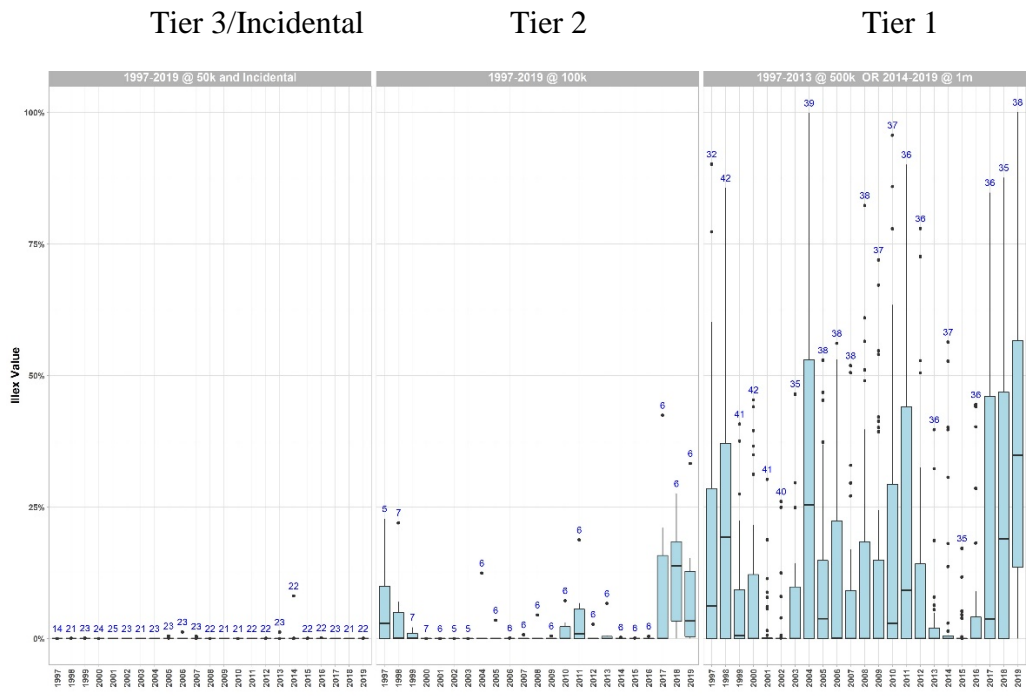


Figure 3. Species revenues, by year, for the #4 Alternative. Species in the top 10 for any year are included.

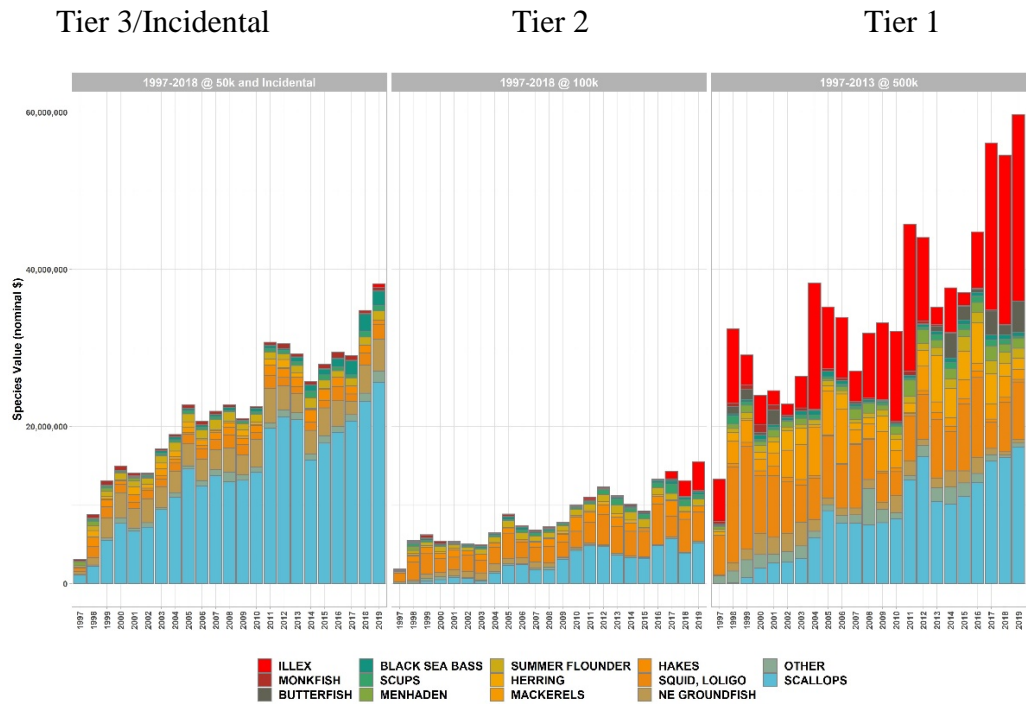


Figure 4. Species revenues, by year, for the #5 Alternative. Species in the top 10 for any year are included.

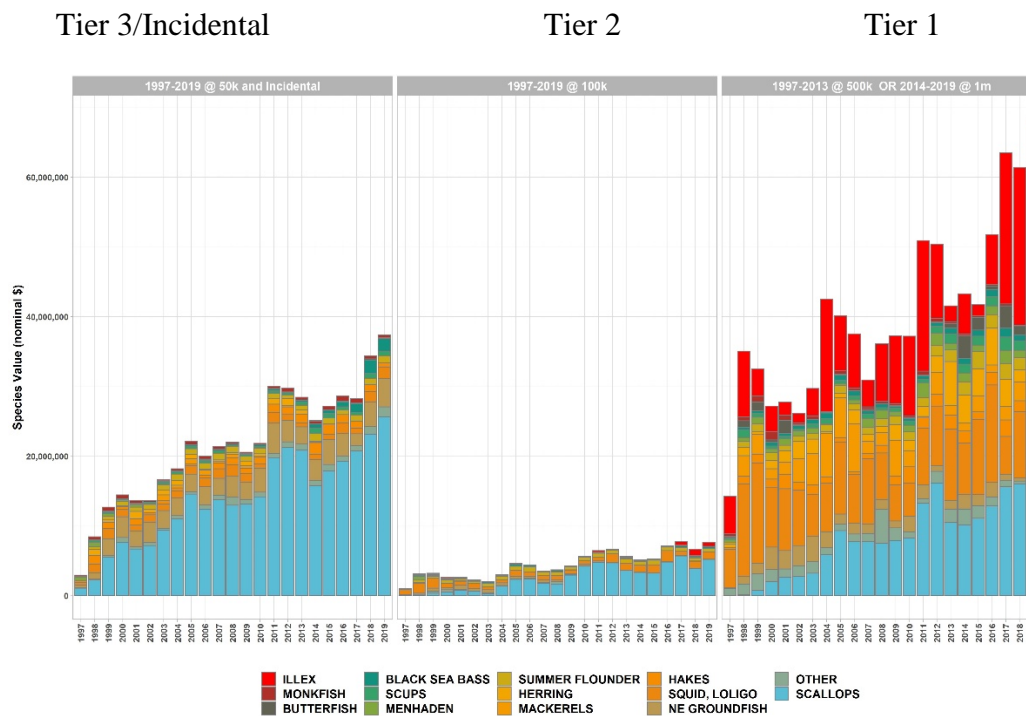


Figure 5. Permit Distribution, #4 Alternative

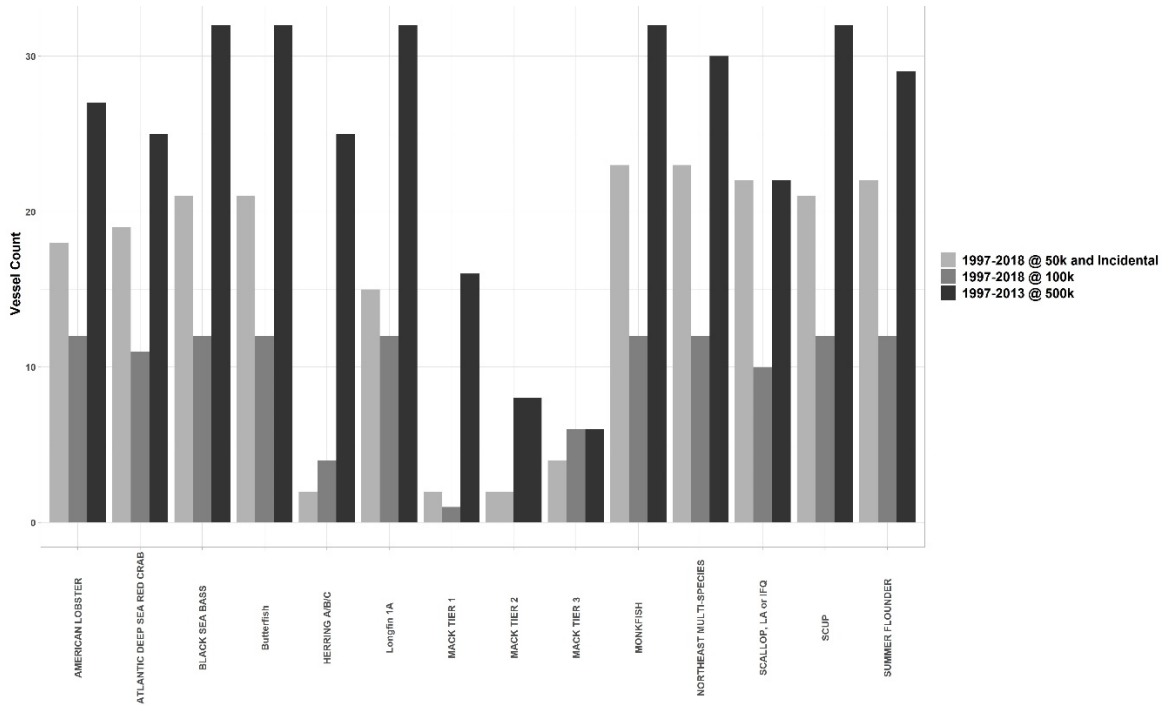
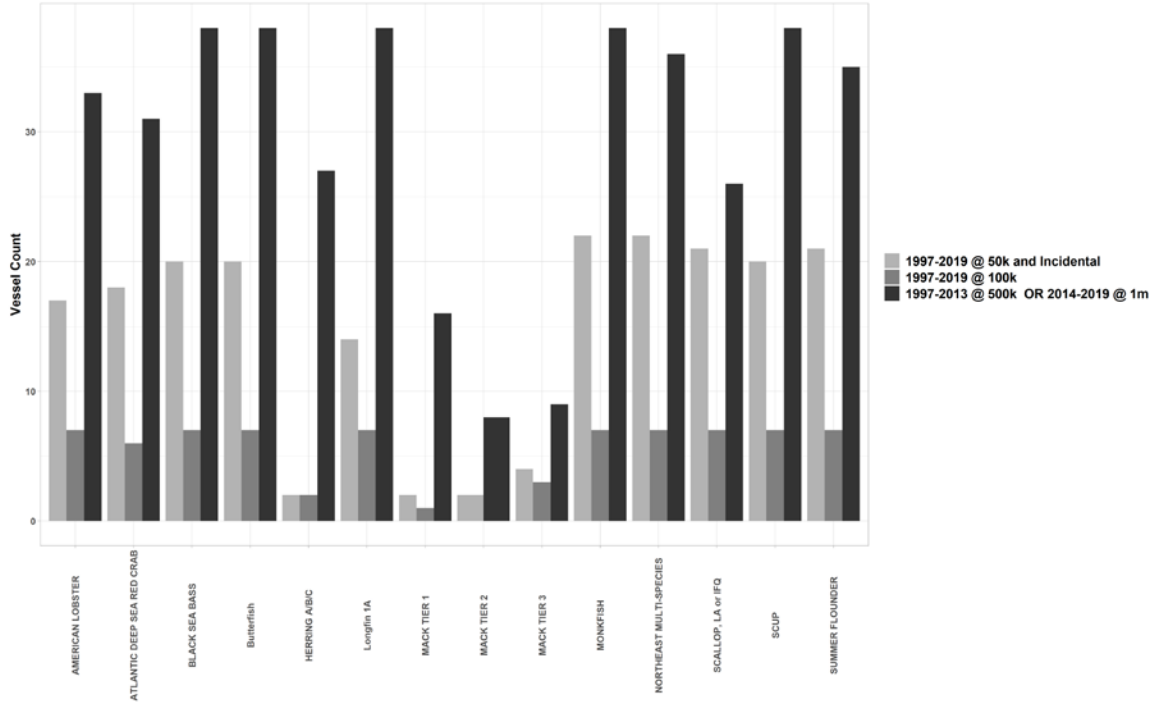


Figure 6. Permit Distribution, #5 Alternative



2. Goals and Objectives

The motion from the Committee is:

I move that the Committee recommend that the Council adopt the goals and objectives as presented today and in the public hearing document.

3. Requiring daily *Illex* VMS reporting.

The motion from the Committee is:

I move that the Committee Recommend that the Council approve requiring daily catch VMS reporting for limited access *Illex* vessels.

4. Vessel hold measurements and baselines.

As discussed in the public hearing document, the fish hold measurement and upgrade restriction would mirror that of the mackerel fishery, and vessels that already have such a baseline for their mackerel permit would simply carry over the same baseline to their Tier 1 *Illex* permit. This alternative, like with mackerel, is designed to help freeze the footprint of the fishery and avoid additional over-capitalization. The Committee passed a motion (see below) for Tier 1 and considered a similar recommendation for potential Tier 2 re-qualifiers, but postponed voting for Tier 2 pending additional input from staff regarding whether having a hold measurement and baseline could be useful for future scientific endeavors and/or real-time management.

Based on discussions with Lisa Hendrickson and Paul Rago, hold measurements could potentially be useful as a way to standardize among vessels for evaluating the productivity of vessels/the fishery, and Paul Rago used a shorthand capacity measurement (maximum catch) in some of his workgroup efforts. However, the baseline and upgrade restriction component of this measure would not be needed in this regard – it's the measurement that is useful for science rather than upgrade restriction. If the Council adopts baseline and upgrade restrictions it should be based on freezing the footprint and limiting capacity increases. However, doing so also comes at a cost in terms of limiting changes that may make a vessel more efficient, and the Council should weigh and discuss the potential benefits related to avoiding additional excess capacity versus the loss of flexibility created by a vessel hold baseline and upgrade restriction.

The motion from the Committee is:

I move that the Committee recommend that the Council require a maximum volumetric fish hold measurement for Tier 1 limited access *Illex* MRIs. The fish hold volume could be increased by up to 10 percent of the MRI's baseline hold measurement, whether through refitting or vessel replacement. The baseline would be that of the vessel initially qualifying for the permit at the time of the final rule's effective date.