

1.1 Economic Impacts

1.1.1 Updates to Annual Catch Limits Alternatives

Alternatives for updating ACL are described in Section **Error! Reference source not found.** The No Action Alternative would not be consistent with the Act. The Preferred Alternative would lower TAL across the skate wing and bait fisheries.

1.1.1.1 Option 1: No Action (ACL= ABC of 35,479 mt, ACT of 27,275 mt, TAL of 18,001 mt, Wing TAL =11,169 mt, Bait TAL 5,626 mt)

Under the No Action Alternative, no changes in ACL or TAL would occur. No additional economic impacts beyond those already analyzed in previous plan amendments and framework adjustments are expected in the short run (the status quo ACL would reduce the risk of closing the directed skate wing fishery before the end of the fishing year; refer to A3 and FW1 for the complete analyses). Although recent landings have been below TAL, this alternative carries the distinct possibility of allowing landings to exceed the TAL based on revised data. Based on dealer data, the total skate revenue in FY 2013 and 2014 was \$7,163,379 and \$8,917,870 respectively; if the average price per pound of skate wings remains within the recent range (~\$0.25/lb), the total revenue from skate wings would not be expected to significantly decrease. In the long run, this option may lead to future declines in biomass and catch, more restrictive regulation, and the failure to reach optimum yield, which would result in a negative and potentially significant economic impact to the fishery.

Table 1 - Total Skate Landings and Revenue by Fishing Year (Source: NMFS Dealer data)

FY	Total Landings (in live lbs)	Total Revenue
2010	31,894,625	\$ 7,908,341
2011	40,928,099	\$ 9,050,385
2012	32,586,156	\$ 6,856,472
2013	30,431,615	\$ 7,163,379
2014	33,707,610	\$ 8,917,870
Grand Total	169,530,105	\$ 39,896,447

1.1.1.2 Option 2: Revised Annual Catch Limit Specifications (ACL= ABC of 31,081 mt, ACT of 23,311 mt, TAL of 12,872 mt, Wing TAL =8,560 mt, Bait TAL 4,312 mt)

Under this alternative, TAL would be reduced from 23,365 metric tons to 16,385 mt. Reductions in the ACL and TAL themselves do not necessarily necessitate changes in management measures, reductions in fishery effort, or changes in fishery profits. In this case, the Option 2 TAL (16,385 mt) remains above the total catch by federally reporting vessels from FY 2013 (13,803 mt) and FY 2014 (15,289 mt), but is below total catch by federally reporting vessels from FY 2011 (18,564 mt). FY2011 represents the recent maximum total landings. Relative to Option 1: No Action, this alternative would result in a higher likelihood of triggering AMs.

Accountability measures (AMs) are triggered when catch of skate wings reaches 85% of the wing TAL (9261.6 mt) or 90% for the skate bait fishery (4939.2 mt), as established in Framework Adjustment 1 and Amendment 3 to the Northeast Skate Complex FMP. Amendment 3 mandated that skate wing possession limits be reduced to the incidental limit of 500 lbs when the AM is triggered. For the skate bait fishery, when 90% of the ACL is achieved the bait possession limit is reduced to the current wing fishery

possession limit (either the possession limit implemented in this FW or the incidental trip limit of 500 lbs.). For either fishery, a lower TAL increases the likelihood of triggering AMs that reduce possession limits to incidental levels. This would also have negative short-term economic impacts with the severity depending on when in the fishing year the TAL trigger was reached; the incidental possession limit would effectively prevent any directed fishing for skate (either wing or bait). While the long-run economic benefits of both skate fisheries depend on meeting, but not exceeding, the TAL, short-term negative economic impacts may accrue to the targeted skate fishery as a result of this alternative.

The magnitude of the impact of earlier triggering of AMs depends on two factors: the number of vessels that target skates and would therefore be affected by reduced trip possession limits, and the probability of triggering AMs under this alternative compared to the status quo. To avoid exceeding the TAL, revised trip possession limits could be necessary, and are discussed and evaluated for economic impacts in Section 1.1.2 and Section 1.1.3. Revised trip possession limits would be the primary driver of short-run economic impacts from a revised TAL under the assumption that the TAL is optimally set.

1.1.2 Skate Wing Possession Limit Alternatives

1.1.2.1 Option 1: No Action – 2,600 lbs from May 1 to Aug 31; 4,100 lbs from Sept 1 to Apr 30

When combined with Updates to ACL **Alternative 1: No Action**, this alternative would not increase or decrease short-term economic benefits beyond those analyzed in Framework Adjustment 1, which set seasonal skate wing possession limits. Long-term, negative economic impacts would be realized only if the long-term health of the stock were to decline, as would be expected if an ACL is set at an amount higher than that determined by the best available science. However, allowing an ACL to remain at a level below that mandated by the best available science would be inconsistent with the Act.

When combined with Updates to ACL **Alternative 2: Revised ACL Specifications**, the wing possession limits associated with this alternative could potentially result in more frequent triggering of AMs due to the triggering threshold remaining at 85% of TAL and a decreased TAL. The distribution and estimated magnitude of the economic impact of a lower TAL combined with status quo possession limits is different for 2013 and 2014 fishing levels.

Table 1.1 - Landings in excess of Option 1 proposed trip possession limits (FY2013 - FY 2014)

	Actual Landings			Option 2: Revised Skate Wing Possession Limits				
	Total Landings (1,000 lbs.)	Total Revenue (\$1,000)	TAL (1,000 lbs.)	Proposed TAL (1,000 lbs.)	Revenue loss of Opt. 1 (\$1,000)	Landings in excess of Opt. 1 (1,000 lbs.)	Truncated total landings (1,000 lbs.)	Percent of “Option 2: Revised Annual Catch Limit Specification” TAL
2013	19,187	5,951	31,609	18,871	\$851 (14.3%)	1,863	17,324	91.8%
2014	24,320	7,767	24,623	18,871	1,723 (22.1%)	5,348	18,972	100.5%

Source: SAFIS/CFDBS; includes all non-bait landings from federal permit-holders converted to live weight

Option 1: No Action, combined with the preferred Updates to ACL Alternative – Option 2: Revised ACL Specifications, would trigger AMs in February under 2013 conditions and in November under 2014 conditions. It is not known in this option will significantly affect a substantial number of permit-level or affiliate (“ownership group”) level entities. That awaits further analysis.

1.1.2.2 Option 2: Revised Skate Wing Possession Limits – 1,500 lbs from May 1 to Aug 31; 2,400 lbs from Sept 1 to Apr 30

This alternative is described in Section **Error! Reference source not found.** The total number of unique permits landing skate wings during FY2013 and FY2014 was XXX. Of these, YYY unique permits landed greater than 1,500 lbs of wings from May 1 to Aug 31 (Summer season) or greater than 2,400 lbs from Sep 1 to Apr 30 (Winter season) during fishing year (FY) 2013 and 2014. ZZZ unique permits recorded trip landings within 100 lbs of the season's trip possession limit over a total of ABC trips. These trips are most likely to be "skate targeting" trips.

A simulation of the effects of revised trip possession limits was performed based on FY2013 and FY2014 data. While future fishing behavior and effort may vary significantly from past effort due to exogenous influences such as weather, ex-vessel prices, and the availability of other species, recent fishing behavior and effort is the best feasible predictor of future effort. The results discussed here do not account for future, unknown changes in fishery dynamics, but provide a reasonable and feasible estimate of the impact of alternative trip possession limits.

Under fishing year 2013 and 2014 conditions, 1,804,648 pounds (wing weight, 1858 mt live weight) and 3,089,381 pounds (wing weight, 3181 mt live weight), respectively, would not have been landed with this option. In addition to this, some number of skate targeting trips that did occur in FY2013 and FY2014 would not have taken place at all as a result of the lower trip possession limits. This would occur when the maximum revenue under the trip limits would be less than the expected total cost of the trip itself. While this is unknown, it is more likely during the 500 pound possession limit (March and April, under 2014 conditions).

Error! Reference source not found. shows the total (live) landings and revenues for FY2013 and FY2014, and the truncated landings, assuming that all trips occurring at the higher 2013-2014 limits would still occur, but with landings truncated at the proposed limits.

Total skate wing landings in 2013 would have been at least 4,096 thousand pounds lower under the proposed trip possession limits. For 2014, total skate wing landings would have been at least 7,012 thousand pounds lower. Total skate wing landings for 2013 and 2014 would have been 15,090 and 17,308 thousand pounds, respectively. In both cases, the total skate landings would not have exceeded the TAL associated with the ACL Alternative 2 (above). Although 2014 had the highest landings of the last three years, the total landings that fishing year would have fallen short of the TAL set in Alternative 2: Revised Annual Catch Limit Specifications by 1,563 thousand pounds (8.3%), under Option 2 limits.

Table 2 - Landings in excess of Option 2 proposed trip possession limits (FY2013 - FY 2014)

	Actual Landings			Option 2: Revised Skate Wing Possession Limits				
	Total Landings (1,000 lbs.)	Total Revenue (\$1,000)	TAL (1,000 lbs.)	Proposed TAL (1,000 lbs.)	Revenue loss of Opt. 2 (\$1,000)	Landings in excess of Opt. 2 (1,000 lbs.)	Truncated total landings (1,000 lbs.)	Percent of "Option 2: Revised Annual Catch Limit Specification" TAL
2013	19,187	5,951	31,609	18,871	\$1,218 (20.4%)	4,096	15,090	79.9%
2014	24,320	7,767	24,623	18,871	2,217 (28.5%)	7,012	17,308	91.7%

Source: SAFIS/CFDBS; includes all non-bait landings from federal permit-holders converted to live weight

Under this option, a total of AA permits, all of which qualify as small businesses at both the permit level and the affiliate (or “ownership group” level), would have lost greater than 5% of total permit revenue, and BB vessels would have lost greater than 10% of total permit revenue. It is not known if this number of affected entities exceeds the number of potentially affected entities associated with either Option 1 or Option 3.

While revenues are not perfectly correlated with profits, a change in revenue represents a decrease in economic well-being for the permit-holder. Implementation of Option 2: Revised Skate Wing Possession Limits would likely result in landings below each of the proposed TALs, including Option 1: No Action, which is the highest proposed TAL. Failure to land a TAL due to trip possession limits signifies a real and negative economic impact to the skate wing fishery (\$494 thousand under 2014 conditions). Furthermore, trip possession limits may encourage increased discarding, leading to under-estimated fishing mortality and declines in stocks relative to optimum levels.

1.1.2.3 Option 3: Revised Skate Wing Possession Limits – 5,000 lbs year round

This alternative would eliminate the seasonal trip limits and replace them with a constant skate wing possession limit of 5,000 lbs (11,350 live lbs). This alternative is described in detail in Section **Error! Reference source not found.**

The economic benefit of an increase in trip possession limits depends upon the corresponding skate wing TAL. To estimate the likelihood of exceeding a proposed TAL, a counterfactual trip landing was generated for every trip in FY2013 and FY2014. To simulate landings under a 5,000 lbs possession limit, the landings are set at either (1) 5,000 lbs (wing weight) *if and only if* the actual trip landings were greater than 100 live lbs below the actual trip possession limit (in live pounds), or (2) the actual trip landings *if* the actual trip landings was less than 100 live lbs below the actual trip possession limit (in live pounds). For example, a trip landing 5,820 live lbs of skate wings during a summer month (trip possession limit: 2600 wing lbs x 2.27 conversion factor = 5,902 live lbs) would be within 100 live lbs of the possession limit, would be considered a “skate targeting / maximizing” trip, and would be assigned a counterfactual landing of 5,000 lbs (11,350 live lbs). A trip landing 5,800 live lbs at the same time would *not* be considered a “skate targeting / maximizing” trip, and the counterfactual would be the actual landing lbs (5,800).

The counterfactual represents a likely upper-bound for landings. Although trips within 100 live lbs of the possession limit may be accurately assumed to be “skate targeting / maximizing,” the actual landings of these trips under the higher proposed possession limits may not consistently reach the new limit. This is a methodological limit on analysis; complete information on actual catch under higher possession limits is not observable in the data and is thus not feasibly available.

In both FY2013 and FY2014, the TAL would likely have been exceeded. FY2014 represented a peak year for skate landings; in the FY2014 counterfactual, AMs would have been triggered in October (December for 2013 conditions), and TAL would have been exceeded in that same month. Counterfactual catch in FY2014 would have exceeded TAL by 9,226 thousand pounds (live weight); FY2013, by 2,979 thousand pounds.

FY2014 counterfactual landings suggest that the skate wing fishery triggered AMs in October of FY2014 under the proposed trip possession limits and under Preferred Alternative Option 2: Revised ACL Specification. When a TAL is likely to be binding before the end of the fishing year, an incentive for derby-style fishing exists where individual permit-holders intensify skate landings prior to the triggering of AMs. Existing data is not sufficient to estimate how effort would shift (or the intensity of the derby-

style fishing) given that skates are not frequently targeted, and are landed only as sellable by-catch by many permit-holders.

Table 3 shows the counterfactual landings, if AMs are triggered, under this possession limit option. Under this scenario, the 500 pound landed weight (1135 pound live weight) possession limit is imposed in December for 2013 and October for 2014. The result is losses in revenue (11.6% and 16.2 % respectively) and landings (596 and 3,756 thousand pounds respectively) under 2013 and 2014 conditions. The TAL, however, is not exceeded in 2013 and only marginally exceeded in 2014. On the other hand, the costs associated with changing the possession limit from 5,000 to 500 landed pounds may result in a large number of skate ‘trips’ not taken during December through April (2013 conditions) and October through April (2014 conditions). Drastic changes in ex-vessel prices, although not measured, from the heavy to the light landing periods also are likely.

Table 3 - Landings in excess of Option 3 proposed trip possession limits (FY2013 - FY 2014)

	Actual Landings			Option 2: Revised Skate Wing Possession Limits				
	Total Landings (1,000 lbs.)	Total Revenue (\$1,000)	TAL (1,000 lbs.)	Proposed TAL (1,000 lbs.)	Revenue loss of Opt. 3 (\$1,000)	Landings in excess of Opt. 3 (1,000 lbs.)	Truncated total landings (1,000 lbs.)	Percent of “Option 2: Revised Annual Catch Limit Specification” TAL
2013	19,187	5,951	31,609	18,871	\$692 (11.6%)	596	18,590	98.5%
2014	24,320	7,767	24,623	18,871	1,258 (16.2%)	3,756	20,564	100.1%

Source: SAFIS/CFDBS; includes all non-bait landings from federal permit-holders converted to live weight

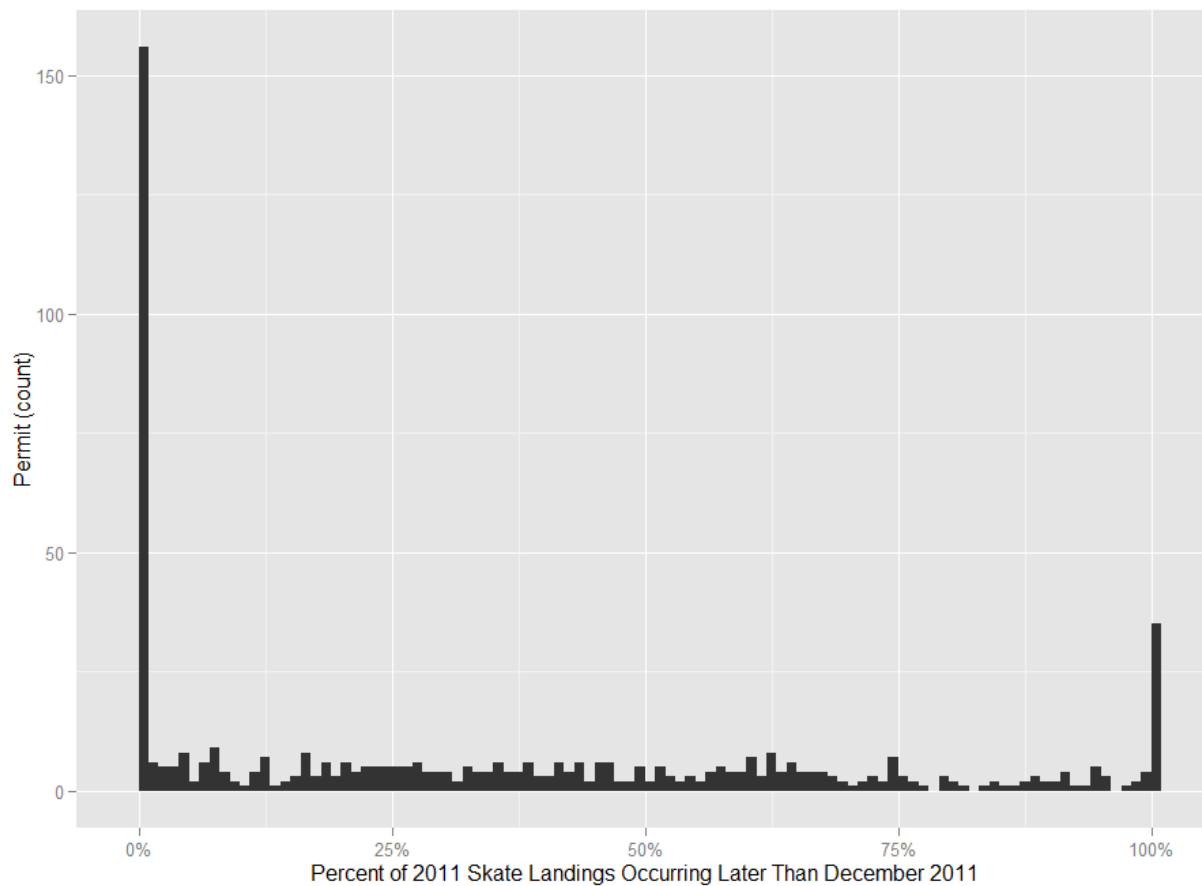
Distribution of Impacts from Triggering Accountability Measures [TO BE REVISED]

In FY2014, the recent peak of skate wing landings, 450 unique permits landed skates. Of these, 224 (xx.x%) landed skates in October or later and would be affected by an early closure.¹ These are landings that would not be possible under Option 3 due to the triggering of AMs in October and the exceeding of TAL by November. However, some number of these permit-holders would be capable of shifting skate landings to earlier in the fishing year. To be negatively impacted by the triggering of AMs and the exceeding of TAL, a permit-holder would have to disproportionately rely on skate wing landings from December to April. Figure 1 shows the distribution of reliance on landings in December or later. ~~176 of 550 permits (32%) caught 50% or more of all FY 2011 skate landings in December or later; 82 (15%) caught 75% or more in that period; and 35 (6%) caught 100% of skate landings during that period.~~

~~For permit holders that landed 100% of FY2011 skate landings in December or later, the mean FY total landings per permit were 9,659 and the median landings were 1,217. For permit holders that landed more than 75% of FY2011 skate landings in December or later, the mean total landings per permit were 29,867 and the median landings were 4,741. Permit holders that rely on December or later skate landings recorded 29 of 1,169 (2.9%) of all “skate targeting / maximizing” trips.~~

¹ 224 permits landed skates in excess of the incidental trip limit of 500 lbs wing weight in December of FY2014 or later. Even when TAL is exceeded and AMs have been triggered, landings of up to 500 lbs are allowed.

Figure 1 - Distribution of Permit-Aggregated Shares of FY2011 Skate Landings in December or Later



The 82 permit-holders that rely heavily (>75%) on late-season skate landings and would be significantly affected by closures triggered by increased possession limits land a substantial amount of skate wings and may occasionally target skates, although the extent to which they could shift landings to offset losses is unknown. Although overall economic benefits from skate wing landings are independent of season landed, the negative impacts of this option would fall primarily on these 82 permit-holders rather than the fishery at large. Home ports for these vessels are primarily Barnegat Light, NJ (11 of 36 skate-landing permits rely on Winter season skate landings), Gloucester, MA (5 of 51), New Bedford, MA (5 of 42), Boston, MA (4 of 36), and Belford, NJ (3 of 12). Vessels landing primarily during Summer, when the fishery is more likely to be open under this option, would accrue the largest share of benefits.

Vessels that disproportionately rely on late-season landings for skate landings but do not rely on skates as a significant portion of their landing portfolio will be minimally affected by this alternative. Of the 82 vessels that gain a significant share of skate landings from December-or-later landings, 10 vessels rely on skate landings for greater than 10 percent of total revenue, and 15 vessels rely on skate landings for greater than 5 percent of total revenue. Multiplying the percent of total revenue that the vessel lands in skates by the total share of skate landings that could potentially be lost due to a December skate fishery closure yields an estimate of the percent of total vessel revenue that could potentially be lost (assuming effort cannot be shifted to pre-closure periods) as a result of this alternative. This share exceeds 10 percent for 10 vessels, all of which are considered “small businesses” at both the permit level and the affiliate (or “ownership group” level). Five vessels exceed 15 percent, and one vessel reaches 31 percent.

1.1.3 Bait Possession Limit Alternatives

1.1.3.1 Option 1: No Action – 25,000 lbs year round

This action would keep the skate bait possession limit constant at 25,000 lbs. Total federally-reported skate bait landings in FY2011 and FY2012 were 4,880 mt and 4,821, respectively. FY2011 represents the recent peak of skate bait landings, but this amount does not exceed the trigger amount (90% of TAL) for *any* of the proposed TALs.

In FY2011, zero trips landed within 1,000 lbs of the possession limit. In 2012, 18 out of the 1,478 (1.2%) federally-reported skate bait landings came within 1,000 lbs of the 25,000 lbs trip limit. No measurable economic impacts would result from this alternative, and it is unlikely that the skate bait fishery, under this option, would trigger AMs at any proposed TAL.

1.1.3.2 Option 2: Revised Skate Bait Possession Limit – 20,000 lbs year round

This action would lower the skate bait possession limit to 20,000 lbs. In FY2011, one trip out of 1,733 (.05%) landed greater than the proposed possession limit. In FY2012, 115 out of 1,478 (7.8%) trips landed greater than the proposed possession limit. In FY2011 and FY2012, a total of 256,840 lbs of skate bait were landed in excess of the proposed possession limits. This amount represents only 1.2% of all FY2011-FY2012 landings. Although vessels who reach the lower proposed possession limit can shift additional catch to other trips to offset potential losses, the impact of this proposed possession limit would have an upper-bound economic loss of 128,420 lbs of skate bait per year, assuming that TAL is not exceeded under either possession limit.

An average reduction of 128,420 lbs for a fishery that has not reached TAL would represent a real, negative economic loss in comparison to Option 1: No Action. TAL is not likely to be exceeded, nor is the 90% AM trigger expected to be reached, under either possession limit. Therefore, no future benefits are gained through a reduction in catch and the proposed constraining possession limit constitutes an unnecessary economic loss for the skate fishery.

1.1.4 Wing Fishery Seasonal Management Alternatives

1.1.5 Option 1: No Action

The No Action alternative would maintain the seasonal structure established in Framework Adjustment 1 for skate wing possession limits. The fishing year would remain divided into two seasons: season 1 (May 1 to Aug 31) and season 2 (Sep 1 to Apr 30). This would maintain the current levels of fishing opportunities for vessels.

1.1.6 Option 2: Modification of Wing fishery Seasonal Management

This alternative would create seasonal TALs for the wing fishery consistent with the existing seasonal skate wing possession limits (2600 and 4100 landed pounds). The first season would be allocated 40 % of the annual TAL (representing XX,XXX in 2016 and 2017) for May 1 to August 31. Once 85% of the allocated TAL is reached between May 1 and August 31, the incidental possession limit (500 pounds landed weight) will be imposed. The second season would be allocated 60% of the annual TAL (representing XX,XXX in 2016 and 2017) for September 1 to April 30. Once 85% of the allocated TAL is

reached between September 1 and April 30, the Regional Administrator would have the discretion to implement the incidental possession limit if the fishery is projected to exceed the TAL.

Table 4 shows the expected impacts on the skate fishery in 2013 (incidental possession limit in

Table 4 - Landings in excess of Option 2 proposed trip possession limits (FY2013 - FY 2014)

	Actual Landings			Option 2: Revised Skate Wing Possession Limits				
	Total Landings (1,000 lbs.)	Total Revenue (\$1,000)	TAL (1,000 lbs.)	Proposed TAL (1,000 lbs.)	Revenue loss of Opt. 4 (\$1,000)	Landings in excess of Opt. 4 (1,000 lbs.)	Truncated total landings (1,000 lbs.)	Percent of "Option 2: Revised Annual Catch Limit Specification" TAL
2013	19,187	5,951	31,609	18,871	\$445 (7.4%)	1,745	17,441	92.4%
2014	24,320	7,767	24,623	18,871	1,716 (22.0%)	5,509	18,811	99.7%

Source: SAFIS/CFDBS; includes all non-bait landings from federal permit-holders converted to live weight

1.1.7 Option 3: Revised Skate Wing Seasonal Structure

This alternative would create seasonal TALs for the wing fishery consistent with the existing seasonal skate wing possession limits. The first season would be allocated 40 % of the annual TAL (representing XX,XXX in 2016 and 2017) for May 1 to July 31. Between August 1 and September 15, the incidental possession limit of 500 lbs would be implemented, regardless of whether the in-season trigger point had been reached. The second season would be allocated 60% of the annual TAL (representing XX,XXX in 2016 and 2017) for September 1 to April 30. Once 85% of the allocated TAL is reached between September 1 and April 30, the Regional Administrator would have the discretion to implement the incidental possession limit if the fishery is projected to exceed the TAL.