

7.5 Economic Impacts

7.5.1 Updates to Annual Catch Limits Alternatives

Alternatives for updating the ACL are described in Section 4.1. The Preferred Alternative (Option 2) would increase TAL for both the skate wing and bait fisheries.

7.5.1.1 Option 1: No Action (ACL= ABC of 31,081 mt, ACT of 23,311 mt, TAL of 12,590 mt, Wing TAL =8,372 mt, Bait TAL 4,218 mt)

Under the No Action Alternative, no changes to the ACL or TAL would be made. Economic impacts analyzed in Framework 3 were underestimated (the status quo ACL would increase the risk of closing the directed skate wing fishery before the end of the fishing year). Recent landings have been above the TAL, and this alternative has a higher possibility of allowing landings to exceed the TAL compared with Option 2, which uses updated survey data (see 7.5.1.2). Based on dealer data, total skate revenue in FY 2015 and 2016 was \$6,269,341 and \$5,443,469 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. Long-term, Option 1 would be expected to result in future increases in biomass and potential catch, less restrictive regulations to reach optimum yield, which would result in a positive economic impact to the fishery if the potential catch is realized. Option 1 would be expected to have overall negative economic impacts because the TAL would be set too low, forgoing potential economic gains within a sustainable TAL. Compared to Option 2, Option 1 would have more negative short-term and long-term economic impacts.

Table 29 - Total Skate Landings and Revenue by Fishing Year (Source: NMFS Dealer data)

	Total Landings (in live lbs)	Total Revenue
2010	32,698,753	\$ 6,298,968
2011	41,302,586	\$ 9,338,329
2012	33,193,745	\$ 7,554,998
2013	30,896,762	\$ 7,593,669
2014	34,090,696	\$ 8,991,842
2015	33,825,878	\$ 6,269,341
2016	30,354,217	\$ 5,443,469

7.5.1.2 Option 2: Revised Annual Catch Limit Specifications (ACL= ABC of 31,327 mt, ACT of 23,495 mt, TAL of 13,281 mt, Wing TAL =8,832 mt, Bait TAL 4,449 mt)

Under this alternative, the TAL would be increased from 12,590 metric tons to 13,281 metric tons. Under Option 2, the TAL (13,281 mt) is still below the total catch by federally reporting vessels in FY 2015 (15,343 mt) and FY 2016 (13,768 mt). Relative to Option 1: No Action, this alternative has less probability of triggering AMs because the increase in the TAL decreases the likelihood of it being exceeded if fishing behavior and the possession limit does not change. The overall impact of Option 2 would depend largely on future fishing behavior, which is difficult to predict. If fishing effort does not increase, Option 2 would be expected to have low positive long-term economic impacts because landings

would likely be similar to recent fishing years. If the incidental possession limit was triggered before the end of the fishing year, Option 2 could have low negative short-term impacts because this would reduce revenue per trip or affect fishing for other more economically valuable species.

Based on a comparative analysis (Table 30), Revised ACL Specifications (Option 2) would trigger an in-season possession limit adjustment, as happened in 2016 but with lower negative effect, because it occurs later in the fishing year. This is reflected in the second column from the right where landings are truncated to the new TAL of 29,279 thousand pounds, for 2016, resulting in a 1,075 thousand pound and 192 thousand-dollar loss, under 2016 conditions. The last column represents the effect if the Regional Administrator decides not to close the fishery, with no economic losses but with the new TAL exceeded by 3.7 %. Notice that the latter effect is less than the 109% of the Option 1 TAL (27,756 thousand pounds; 31,081 mt) in Table 20. Under 2015 conditions, there would be a medium-high revenue loss of 13.4%, or TAL would be exceeded by 15.5%.

Table 30 - Landings and Revenues with Revised ACL Specifications (FY2015-FY2016 conditions)

	Actual Landings & TAL			Option 2: Revised ACL Specifications				
	Total Landings (1,000 live lbs.)	Total Revenue (\$1,000)	TAL (1,000 lbs.)	Proposed TAL (1,000 lbs.)	Revenue loss (\$1,000)	Landings loss (1,000 lbs.)	Truncated total landings (1,000 lbs.)	Percent of "Option 2: Revised Annual Catch Limit Specification" TAL
2015	33,826	6,269	36,122	29,279	843 (13.4%)	4,547	29,279	115.5%
2016	30,354	5,433	27,756	29,279	192 (3.5%)	1,075	29,279	103.7%

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

An in-season adjustment to possession limits, subject to the discretion of the Regional Administrator, is triggered when catch of skate wings reaches 85% of the, seasonal or annual, wing TAL (8,832 mt) or 90% for the skate bait fishery (4,449 mt), as established in Framework Adjustment 3 to the Northeast Skate Complex FMP. The incidental possession limit would effectively prevent any directed fishing for skate (either wing or bait). However, if FW4 is implemented before this Framework, the bait fishery trigger would change to 80% but with a higher incidental limit, and that may mitigate the losses.

Option 2, the Revised ACL, would have overall positive economic impacts, depending on the Regional Administrator's (RA) decision. If the RA closes the fishery, under 2016 conditions, a low negative, short-term economic impact is the result (3.5% loss in revenues), but long-term economic impact remains positive (Optimum Yield is achieved). If the RA does not close the fishery and TAL is exceeded by 1,075 thousand pounds, the short-term economic impact is low-positive (because TAL is higher) but there may be a low-negative economic impact in the future (if ACL is exceeded in subsequent years as well). This depends whether 2016 conditions persist, or not, over the long-term.

While the long-term economic benefits of both skate fisheries depend on meeting, but not exceeding, the TAL, low short-term and long-term positive economic impacts may accrue to the targeted skate fishery with this alternative.

7.5.2 Barndoor Possession Limit Alternatives

7.5.2.1 Option 1: No Action – 2,600 lbs from May 1 to Aug 31; 4,100 lbs from Sept 1 to Apr 30, possession of barndoor skates is prohibited

Option 1 would not remove the Barndoor Possession prohibition, and economic impacts then would depend on the selection on the ACL Specifications, either No Action or Revised, as described in Sections 7.5.1.1 and 7.5.1.2. The effect of no change to the possession limits would be neutral.

7.5.2.2 Option 2: Barndoor Skate Possession Limit of 500 lb

This alternative would allow vessels to land a maximum of 500 lb of barndoor skate wings (1,135 lb whole weight) as part of their skate wing possession limit. Total pounds of skate wings on board would not be allowed to exceed 2,600 lb in Season 1 or 4,100 lb in Season 2. This cautious approach would allow time for markets to develop and to see how the stock responds to commercial harvest.

There is little or no catch of barndoor skate; possession was prohibited since 2004. Some experimental fishing trips for barndoor skate were allowed so some evidence is available, particularly in 2014 and 2015 (landings were 29,532 and 116,107 pounds, respectively). Prices for barndoor skate, based on extremely low landings, were the same or higher than all skates. Adding barndoor into the skate landings mix may increase revenues compared to what they would have been, under the overall skate wing possession limits. This will have a positive economic impact on the skate fishery, all else being equal.

A possession limit of 500 pounds represents 19.2 % of the Season 1 wing limit and 12.2 % of the Season 2 wing limit, if the barndoor limit were caught on every trip. This represents a maximum economic effect, if barndoor prices maintain a premium.

7.5.2.3 Option 3: Proportional Barndoor Skate Possession Limit

This alternative would establish a barndoor skate wing possession limit that reflected its contribution to the overall observed catch base on observer data. For FY 2018 and FY2019 this would result in a possession limit of 650 lb wings (25%) in Season 1 and 1,025 lb wings (25%) in Season 2.

If the price premium described under Option 2 above holds, this Option would have a positive economic impact on the skate fishery, particularly if the individual fish size is larger for barndoor skates.

7.5.2.4 Option 4: Mixed Skate Wing Possession Limit

This alternative would not establish a specific barndoor skate possession limit. Total pounds of skate wings on board would not be allowed to exceed 2,600 lb in Season1 or 4,100 lb in Season 2, but vessels could land wings from allowed species, including barndoor, in desired quantities up to that amount.

The extent to which vessels would shift their effort from winter to barndoor skate cannot be known, based on history, but must be learned experientially. If the full possession limit for both Seasons 1 and 2 is composed of barndoor skate, then the economic impact of Option 4 will exceed all other options, if the price premium for barndoor is maintained.

7.5.2.5 Option 5: Discard Restriction

Any skate species already winged would not be allowed to be discarded, to land more barndoor skate. This option will mitigate the positive economic benefits of Options 2 through 4. On the other hand, the

value of all non-barndoor skates that are discarded may exceed the value of the barndoor skates landed, even with a price premium, but the levels of non-barndoor discards isn't known to estimate this amount.

Table 31 – Summary of impacts for Options 1 through 5 – barndoor possession limits

Option:	Short run:		Long run:	
	Without Option 5	With Option 5	Without Option 5	With Option 5
1	Neutral	N.A.	Neutral	N.A.
2	Medium-low positive	Low positive	Medium-low positive	Low positive
3	Medium-high positive	Medium positive	Medium-high positive	Medium positive
4	High positive	Medium-high positive	Medium negative	Neutral

No Action, Option 1, has negative long-term impacts because Optimum Yield is not reached. The short-term and long-term economic impacts are the same for each of Options 2 and 3, because it is assumed that the barndoor possession limits chosen are correct. The long-term impacts of Option 4, without the restriction on discards of non-barndoor, winged skates, may turn negative because high-grading is encouraged.

7.6 Social Impacts

7.6.1 Updates to Annual Catch Limits

ACL alternatives are described in Section 4.1 and include increases in the ACL, in the aggregate skate ACL, and in the skate bait and skate wing fishery TALs.

7.6.1.1 No Action (ACL= ABC of 31,081 mt, ACT of 23,311 mt, TAL of 12,590 mt, Wing TAL =8,372 mt, Bait TAL 4,218 mt)

Under the No Action Alternative, the skate catch limits would be those proposed in FW3. The result of that action was negative economic and social benefits, more than expected, mainly from triggering the AM and exceeding the TAL. The bait fishery was impacted by a *de facto* closure in Season 3 of FY2016, and a subsequent *ad hoc* increase in the incidental possession limit to restart that fishery. Maintaining the status quo possession limits, as well, increases the probability of triggering that AM, but FW4 modified both the bait fishery triggers and increased the incidental possession limits and awaits implementation. The FW3 specifications for TAL were below FY2016 total catch, wing catch, and bait catch.

In FY2016, 109 % of both wing and bait TAL was achieved under the status quo specifications and possession limits. Option 1 would have more negative impacts than Option 2 by keeping lower TALs and would not achieve Optimum Yield by forgoing economic benefits.

7.6.1.2 Option 2: Revised Annual Catch Limit Specifications (ACL= ABC of 31,327 mt, ACT of 23,495 mt, TAL of 13,281 mt, Wing TAL =8,832 mt, Bait TAL 4,449 mt) (*Preferred Alternative*)

Under Option 2, the specifications are calculated using updated NEFSC trawl survey data and revised discard mortality rate estimates for winter skate in sink gillnet gear. The increased ACL and TAL have the potential to impact fishing behavior and profits; the increase also would decrease the potential of the AM being triggered before the end of the fishing year. Based on FY2016 landings, the revised specifications still may result in an overage of the skate (wing and bait) TAL; the proposed 29.3 million pounds commercial TAL would be exceeded by 3.7 % under those conditions (Table 37). Compared to Option 1, Option 2 would have less likelihood of triggering the incidental possession limit of 500 lbs by exceeding the TAL. The incidental possession limit may have low negative impacts because it reduces additional revenue from skate resources and may impede harvesting of other targeted species if large amounts of skate are encountered that cannot be landed, thus negatively affecting communities. These impacts may be mitigated, if FW4 is implemented before this Framework, and the bait fishery has scheduled but higher, seasonal incidental possession limits imposed. Overall, Option 2 would have more positive social impacts compared to Option 1.

7.6.2 Barndoor Possession Limit Alternatives

7.6.2.1 Option 1: No Action – 2,600 lbs from May 1 to Aug 31; 4,100 lbs from Sept 1 to Apr 30, possession of barndoor skates is prohibited

This option would maintain the current skate wing possession limits established in FW3. Option 1 would have neutral social impacts if the incidental possession limit was not triggered during the fishing year. Option 1 might have more negative impacts compared to Option 2 if in-season incidental limit is triggered before the end of the fishing year. Based on FY2016 landings, the proposed 29.3 million pounds commercial TAL would be exceeded by 3.7 %, under similar conditions (Table 37), and the incidental limit most likely would be implemented, albeit later in the fishing year. However, if FW4 is implemented before this Framework, and the bait fishery has scheduled but higher, seasonal incidental possession limits imposed, the incidental limits would be even later in the fishing year and may not occur at all. The combination of the increased TAL and status quo possession limit could result in negative impacts if the incidental possession limit was triggered, particularly if fishing for other, more economically valuable species is affected. Option 1 would have negative social impacts when compared to the other possession limit options, if barndoor skate is a more valuable species.

7.6.2.2 Option 2: Barndoor Skate Possession Limit of 500 lb

All options that allow any amount of barndoor skate within the overall skate wing possession limit will increase economic and social benefits, when compared to No Action (Option 1). No evidence is available to quantitatively assess the impact of a barndoor fishery, except for a small number of exempted/experimental fishing trips between 2012 and 2015; the greatest amount of barndoor landed was only 0.6 % in 2015. With this meager evidence, however, it is possible to observe a potential price premium paid for barndoor skates; up to 1.33 times the overall skate prices. Remember that these prices are for extremely low barndoor skate landings, which may trend towards the overall skate price as landings increase.

A possession limit of 500 pounds (500 lb landed weight) represents 19.2 % of the Season 1 wing limit and 12.2 % of the Season 2 wing limit, if the barndoor limit were caught on every trip. If fishermen are allowed to land 500 lb of barndoor skates within the overall skate wing possession limit, the social impacts are expected to be positive relative to No Action.

7.6.2.3 Option 3: Proportional Barndoor Skate Possession Limit

A proportional barndoor skate possession limit of 25 % of the skate wing limit increases the barndoor possession limit to 650 lb in Season 1 and 1,025 lb in Season 2. Option 3 may result in greater social benefits, if the price premium for barndoor skate holds.

7.6.2.4 Option 4: Mixed Skate Wing Possession Limit

Fishermen would be allowed to possess 2,600 lb (live weight equivalent) in Season 1 and 4,100 lb in Season 2, or 100% of the skate wing possession limit. While providing the greatest positive economic benefits of the three barndoor limit options, it may cause a number of issues in the long-term. Would barndoor prices maintain a premium? Would new markets for the larger barndoor skates result in the elimination of the other skates' fishery, and would that result in fishing vessels using different fishing areas (where barndoor predominate) and/or move to other fishing ports? Any of these effects may have important social impacts.

7.6.2.5 Option 5: Discard Restriction

A discard restriction adds important biological impacts to the socio-economic mix of impacts. Any skate species already winged could not be discarded to land more barndoor skate.

At the extreme, with Option 4, barndoor landings may completely displace other skate wing landings, resulting in the unknown concerns as described above. If barndoor skates cannot be caught exclusively, large numbers of other skate wings may be discarded, increasing the impact on those stocks as well as the social (displacement) and economic (price) effects described above. The skates from which the discarded wings came, of course, are all dead.

Table 39 – Social impacts of Options 1 through 5 – barndoor possession limits

	Short run:	Long run:
Option:		
1	Neutral	Negative
2	Low positive	Low positive
3	Medium positive	Medium positive
4	High positive	Unknown
5	Neutral	Low positive