



New England Fishery Management Council

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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: June 9, 2011
TO: Skate Oversight Committee
FROM: Andrew Applegate, staff
SUBJECT: Preliminary skate wing possession limit analysis

Since the 2012-2013 specifications would change the Skate Wing Total Allowable Landings (TAL) by a substantial degree (potentially increasing from 9,209 to 14,000 mt), I have updated the daily landings analysis from Framework Adjustment 1 with new data and re-estimated a seasonally-split skate wing possession limit that would be consistent with the new potential TAL. At this time, we do not know what the Scientific and Statistical Committee will approve, but I have updated this analysis based on the PDT Annual Catch Limit recommendations (see May 2011 PDT report on ABC specifications; ABC=50,435 mt and wing TAL=14,000 mt not including a potential reallocation to account for skate bait transfers at sea). These results are of course preliminary and would be included with adjustments in the final specifications package analysis in Sep 2011, subject to PDT review.

The preliminary results indicate that with a 1,250 lbs. incidental skate wing possession limit, 100% of the TAL would be achieved (see Scenario 1 in the table below) with a 4,566 lb. limit from May 1 to Aug 31 (season 1) and 7,200 lbs. from Sep 1 to the end of the year (season 2)¹. By definition, the 85% trigger point would be met on Jan 19, meaning that the incidental possession limit would go into place from Jan 19 to Apr 30. With a 500 lbs. incidental skate limit (see Scenario 2 in the table below), a higher split season skate wing possession limit could be allowed (7,990 in season 1 and 12,990 lbs. in season 2), but the 85% trigger date would occur earlier than it would in scenario 1 due to the higher skate wing possession limit. The model for Scenario 2 indicates that the 85% trigger would be hit on Nov 22 (with a correspondingly longer period to make up the remaining 15% of the TAL with a lower 500 lbs. incidental skate possession limit).

Using a more common sense approach, a lower possession limit can be calculated so that season 2 lasts through the entire fishing year (see Scenario 3 in the table below). And in this

¹ In all analysis, the ratio between the skate wing possession limit in season 2 and season 1 is held constant (i.e. a 4,100 to 2,600 lbs. ratio).

case, an incidental skate possession limit does not enter the calculations, since if the landings trajectory holds for the remaining part of the year after the 85% trigger would be hit, the TAL would not be exceeded by the skate wing possession limit without reducing it to the incidental limit. Calculating the potential possession limits in this way would allow for a skate wing possession limit of 3,120 lbs. in season 1 and 4,920 lbs. in season 2.

Table 1. Example skate wing possession limit scenarios for 2012-2013 specifications calculated from May 1, 2009 to May 31, 2011 daily landings data, assuming a 14,000 mt skate wing TAL.

Skate wing possession limit	Scenario 1 (100% TAL with 1,250 lbs. incidental limit)		Scenario 2 (100% TAL with 500 lbs. incidental limit)		Scenario 3	
	May 1 – Aug 31	4,566		7,990		3,120
Sep 1 to trigger	7,200		12,660		4,920	
Estimated 85% trigger date	Jan 19		Nov 22		Not applicable	
Incidental skate wing possession limit	Projected date of reaching TAL at incidental limit	Total projected landings (% of TAL)	Projected date of reaching TAL at incidental limit	Total projected landings (% of TAL)	Projected date of reaching TAL at incidental limit	Total projected landings (% of TAL)
500		94.5%	4/30/2013	100.0%	4/29/2013	100.0%
750		96.6%	3/31/2013	103.3%	4/29/2013	100.0%
1250	4/29/2013	100.0%	3/2/2013	108.7%	4/29/2013	100.0%

As with any model using real data, this estimate is contingent on conditions (regulatory and financial, in this case) which prevailed at the time that the data were collected. And for this reason, I have only included data from May 1, 2009 to May 31, 2011. At the higher potential possession limits, the analysis is influenced half by conditions in 2009 and half by conditions in 2010, when the 20,000 skate wing possession limit was in effect. The daily landings in 2010 were affected by a potential derby style reaction to pending rules, but not to differences in price (see figure below). More important is the fishery performance when the skate wing possession limit was 4,100 and 5,000 lbs during different periods of 2010 and 2011. So the estimates near 5,000 lbs. are more robust and reliable than those closer to a 20,000 lbs. skate wing possession limit.

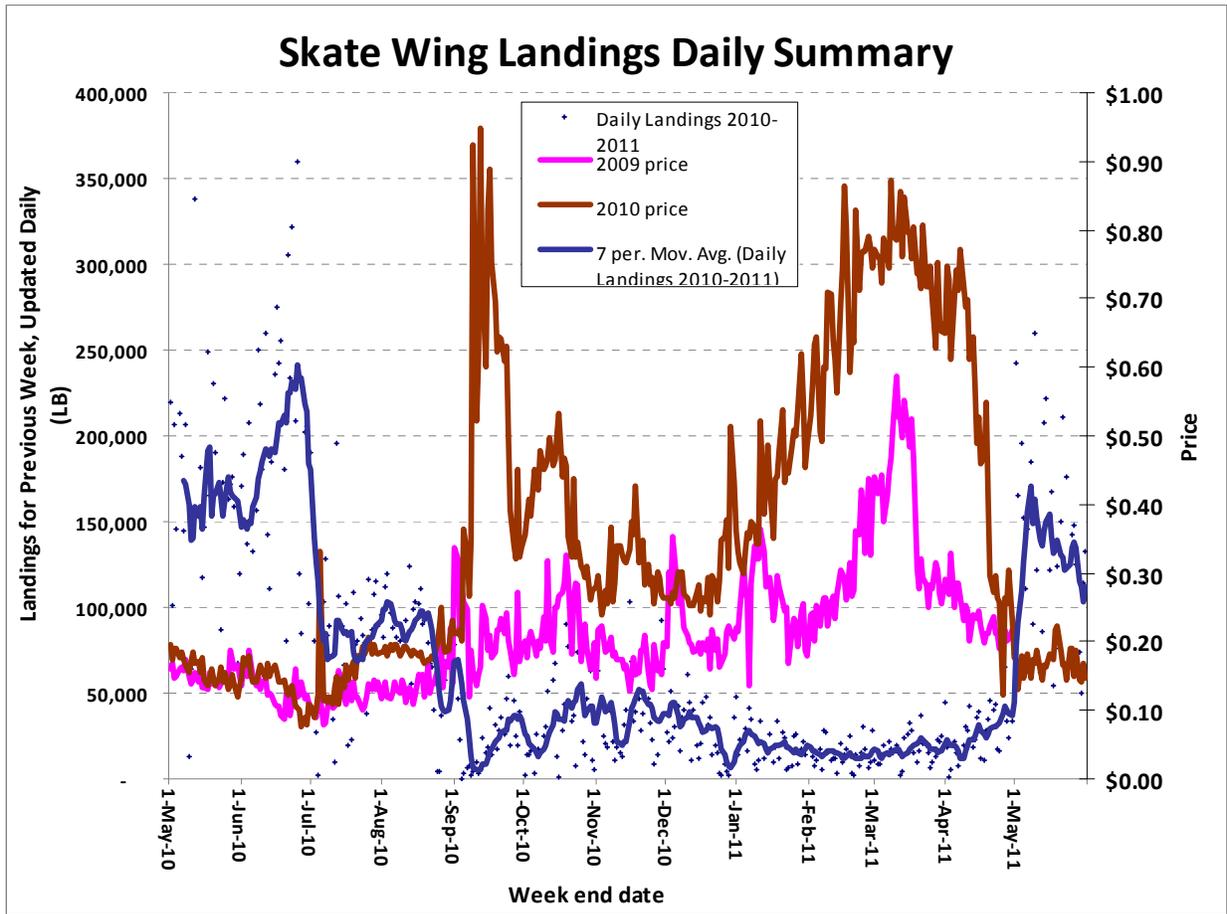
The use of the PDT's possession limit model from Amendment 3 is not possible in the new higher skate biomass levels and the expected ABC and TAL. The Amendment 3 possession limit model is only useful for estimating possession limits that would reduce total landings from previously observed levels, predicting vessel behavior and discarding based on individual trip's net economic return. The utility of the model is nil for predicting vessel behavior for allowable catches that exceed those made by trip performance that populate the model (in the case of Amendment 3, calendar year 2009). And the expected 2012 TAL is higher than in any previous year.

To evaluate the performance and reliability of the daily landings model in this analysis, it is necessary to examine skate wing prices (converted to whole weight equivalent). The daily skate wing landings from May 1, 2010 to May 31, 2011 are shown in the figure below, with a comparison between 2009 and 2010 skate wing prices.

The 2010 fishing year started out with high daily landings around 150,000 lbs/day. Prices in 2010 were comparable to 2009 (see figure below). Daily landings spiked to nearly 250,000 lbs/day, before the 5,000 lb. skate wing possession limit became effective, then plateaued around 75,000 to 100,000 lbs/day. Prices rose to around a 50% premium over the previous year, most likely in response to the lower landings. Then as skate wing landings reached the TAL trigger, the Regional Administrator reduced the skate wing possession limit to 500 lbs. on Sep 3, 2010 for the remainder of the fishing year. Landings fell to less than 10,000 lbs/day and skate wing prices spiked to over 90 cents per pound (whole weight equivalent). Landings gradually increased to about 50,000 lbs./day by late October and then gradually declined to around 20,000 lbs./day in February and March, 2011. Skate prices throughout the period were considerably higher than they were in 2009, increasing again to around 80 cents per whole pound in February, March, and early April.

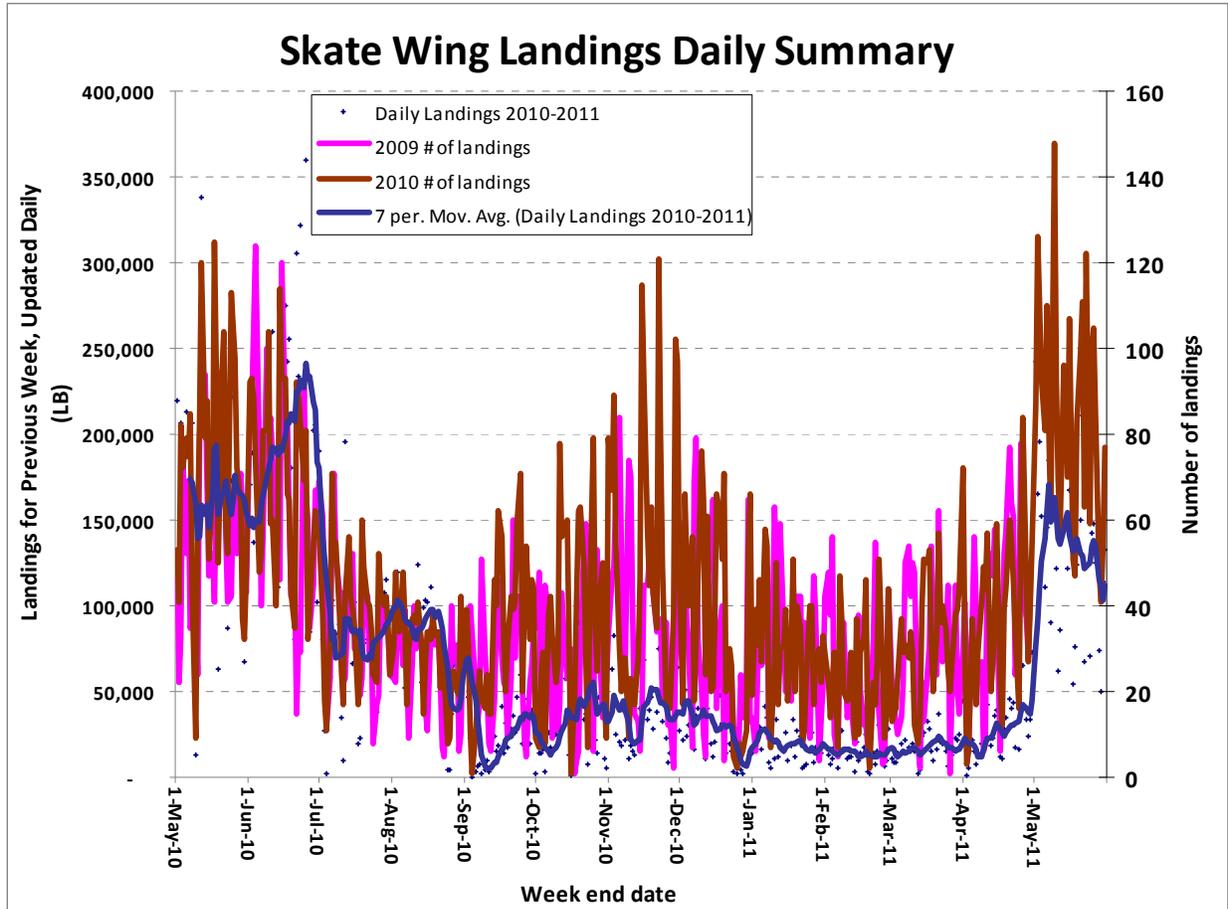
When the skate wing fishery re-opened at the beginning of the fishing year with a 5,000 lb. skate wing possession limit, prices dropped to nearly the same levels as they were early in the 2009 and 2010 fishing years. Landings, however, spiked to over 150,000 lbs/day, almost double the level seen in 2010 while the 5,000 lb. possession limit was in effect. Daily landings then declined to about 100,000 lbs/day while the possession limit decreased to 2,600 lbs on May 17, 2011, but prices remained relatively stable. From this data, it does not appear that daily landings responded to increases in price. Rather the opposite effect occurred.

Figure 1. Trends in daily skate wing landings May 1, 2010 to May 31, 2011, with a comparison between 2009 and 2010 skate wing prices. Source: NMFS dealer data.



Even though the daily landings in 2010 were considerably different than they were in 2009 due to the imposition of the 5,000 and 500 lb. skate possession limits, the number of daily reports (essentially trips landing skates) were about the same as in 2009, almost throughout the 2010 fishing year. But beginning May 1, 2011, the number of daily landings reports spiked to 100-150, much higher than they were in either 2009 or 2010. So for reasons unrelated to price, the number of trips landing skates increased in the early part of the 2011 fishing year relative to the same period in the year before, and the landings with a 5,000 lbs. possession limit were nearly double the amounts observed in 2010 when the 5,000 lbs. possession limit was in effect.

Figure 2. Trends in daily skate wing landings May 1, 2010 to May 31, 2011, with a comparison between the number of landings reports in 2009 and 2010. Source: NMFS dealer data.



As in the analysis for Framework Adjustment 1, the relationship between the possession limit and daily landings can be modeled as an exponential function. With updated data for the 2010 fishing year and one month of the 2011 fishing year, a least square regression estimates a slope of 0.471 and an intercept of 1326.2 (see figure below). Using this equation, for example, a 7,200 lb. skate wing possession limit is predicted to produce nearly 110,000 lbs. of landings daily, on average. The average daily landings in the short time that the 2,600 lbs. skate wing possession limit has been in effect since May 17 is about 100,000 lbs. Time and new data will tell whether the preliminary 2011 fishing performance continues at a higher level than was observed in 2010. Council staff and the PDT can update this model with more 2011 data before the final specifications document to be approved by the Council in Sep 2011.

Using the results in the figure below, the daily landings model predicts the outcome of setting the skate wing possession limit at various levels to meet the TAL amounts. These results are given in Table 1. And similar to Scenario 3 in Table 1, the expected landings (or TAL) can be plotted as a continuous function of the skate wing possession limits (see Figure 4).

Figure 3. Modeled relationship between the possession limits in effect during 2009-2011 and the observed daily skate landings. Bars represent one standard deviation on the daily landings during each period.

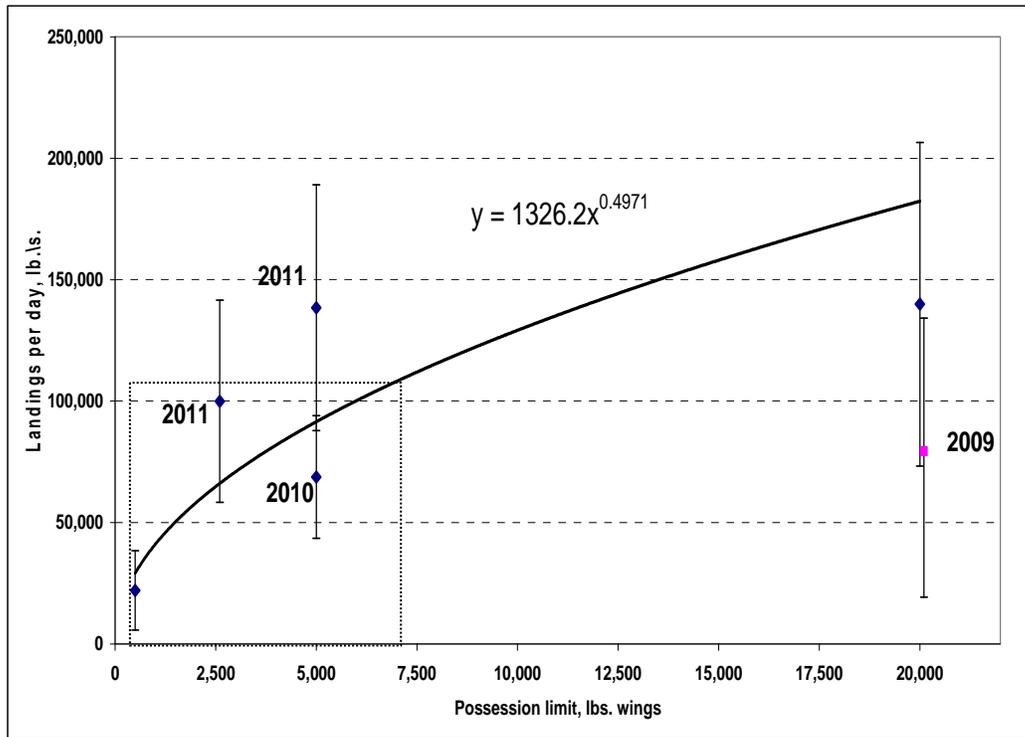


Figure 4. Modeled relationship between skate wing possession limits and expected landings or TAL, using the relationship between the possession limit and daily landings in the Figure above. The ration in the Season 1 to Season 2 possession limit is held constant at a 2,600/4,100 ratio.

