

GROUNDFISH MANAGEMENT TEAM REPORT ON BIG SKATE CATCH AND ITS ECOSYSTEM DESIGNATION

Big Skate Catch and its Designation as an Ecosystem Component Species

In the April Briefing Book, the Groundfish Management Team (GMT) provided a report entitled “Groundfish Management Team Report on Big Skate Catch and its Designation as an Ecosystem Component Species” ([Agenda Item E.8.a, GMT Report 2](#), April, 2015). In that report, the GMT discussed a possible issue with potential catch levels of big skate and provided background information on methods used to estimate big skate landings. Currently, big skate is recorded separately in California¹ on fish tickets as a market category, but is grouped within the “unidentified skate” market category for both Washington and Oregon. However, it was brought to the GMT’s attention that Oregon has species compositions that are not currently uploaded to PacFIN (Washington does not have official species composition for skate). At the time of composing GMT Report 2, the GMT concluded that applying the Oregon species composition to Washington data was acceptable, based on anecdotal information from Washington port samplers.

Since composing GMT Report 2 ([Agenda Item E.8.a](#), April 2015), the GMT has obtained catch monitor (CM) data from Ms. Lori Jesse at Pacific States Marine Fisheries Commission (PSMFC) for all three states. The CM data includes the weight of skates recorded on fish tickets by species. Using the CM data, the GMT calculated the percentage of big skate relative to all skates (excluding longnose skate) landed and recorded on Washington fish tickets under the IFQ program during 2012-2014. Using this method, the GMT estimated that 95.2 percent of the skate landed in Washington (excluding longnose skate) consists of big skate. The GMT discussed potential methods for calculating big skate landings with the Scientific and Statistical Committee (SSC), who recommended continuing to use the big skate market category for California, the Oregon Department of Fish and Wildlife (ODFW) port biologist species composition data for Oregon unidentified skates, and the CM landings data species composition data for Washington ([Agenda Item E.8.a, Supplemental SSC Report](#), April, 2015).

In GMT Report 2, we provided coastwide landings, both tribal and non-tribal, for all gear types. Figure 1 below shows the landings from 2011 to 2014 for the individual fishing quota (IFQ) sector (including trawl and fixed gears) using the methods for estimating big skate landings as described above.

¹ There is an unspecified skate category in California. However, based on the species compositions samples, the GMT believes that there is no big skate present in those landings.

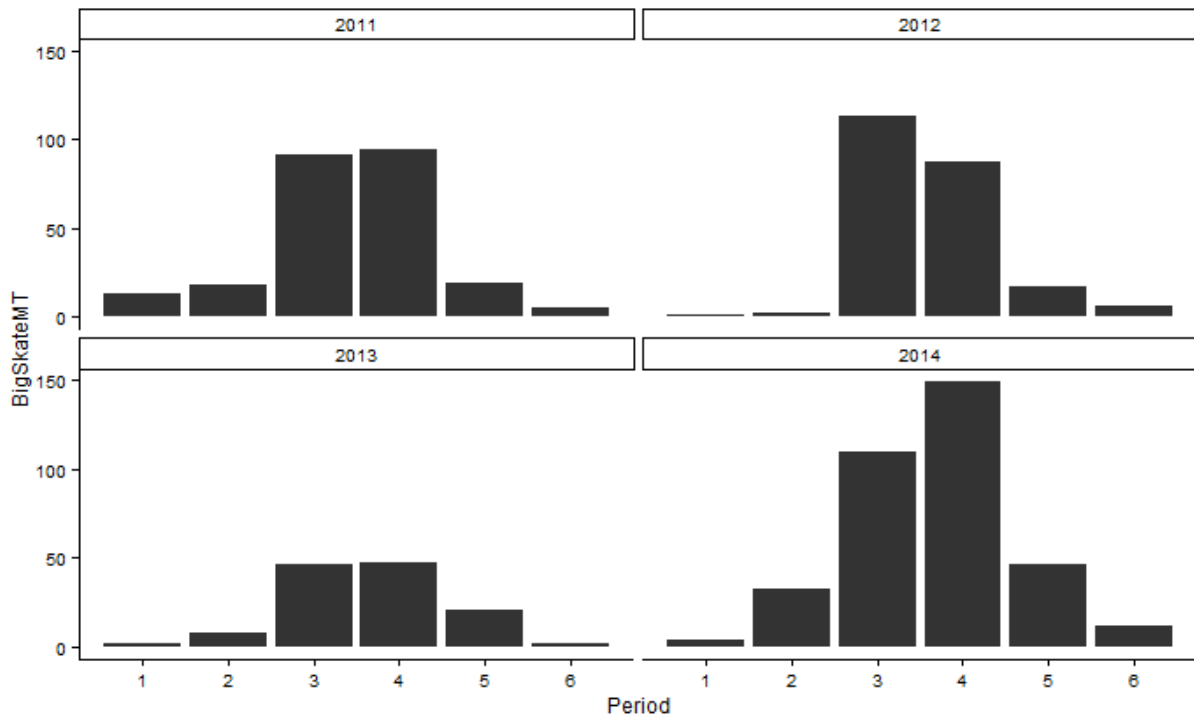


Figure 1 : Estimated coastwide IFQ landings of big skate (mt) by two month period for 2011 - 2014. Data queried from PacFIN answers 4/19/15.

As shown in Figure 1, big skate landings increased in 2014, reinforcing the anecdotal information from ODFW port biologists that the GMT received at its February 2015 meeting. In 2014, an estimated total of 352 mt of big skate was caught by the IFQ sector. Furthermore, Figure 1 also shows that the highest catch occurs during Periods 3 and 4, when trawling effort typically increases shoreward of the rockfish conservation area (RCA) where the highest concentrations of big skate occur. Increased effort shoreward of the trawl RCA may be due to factors such as improved weather conditions and migration of deeper-water species, such as petrale sole and Dover sole, into shallower depths.

The GMT analyzed PacFIN landings data to determine whether there was any correlation between catch of big skate with catch of petrale sole per trip during periods 3 and 4. Specifically, the GMT analyzed the co-occurrence of petrale sole and big skate on individual fish tickets during landings in periods 3 and 4 for 2014. There appeared to be no strong correlation. Therefore, the GMT speculates that these months may simply provide better fishing conditions for a variety of species (e.g., petrale sole), including big skate. In other words, big skate catches increase during periods 3 and 4 because fishing effort increases during these periods. Additionally, GMT members have heard from industry that when targeting other species (e.g., petrale sole, sand sole, and sanddabs), vessels sometimes find a hot spot of big skate and may subsequently make additional sets in areas where concentrations of big skate are located.

In Figure 2 below, a histogram of the 2014 bi-monthly vessel landing counts is shown. In other words, this figure categorizes vessels based on their landings in pounds accumulated in bi-monthly periods. A total of 52 unique vessels landed big skate in 2014. The numbers above the bars represent the unique number of vessels that made big skate landings within that bin during 2014.

Note, there are more unique vessels reported across all landings bins than the total of 52. This is due to the fact that some vessels may have landed within multiple landings groups during the year (i.e. a vessel might have landed in all periods, with 4 landing totals <5,000 pounds, 1 bi-monthly landing of 5,000-10,000, and 1 bi-monthly landing of 20,000-40,000.). The majority of the vessels landing big skate land 5,000 pounds or less per bi-monthly period, while relatively few vessels land greater than 10,000 pounds per period.

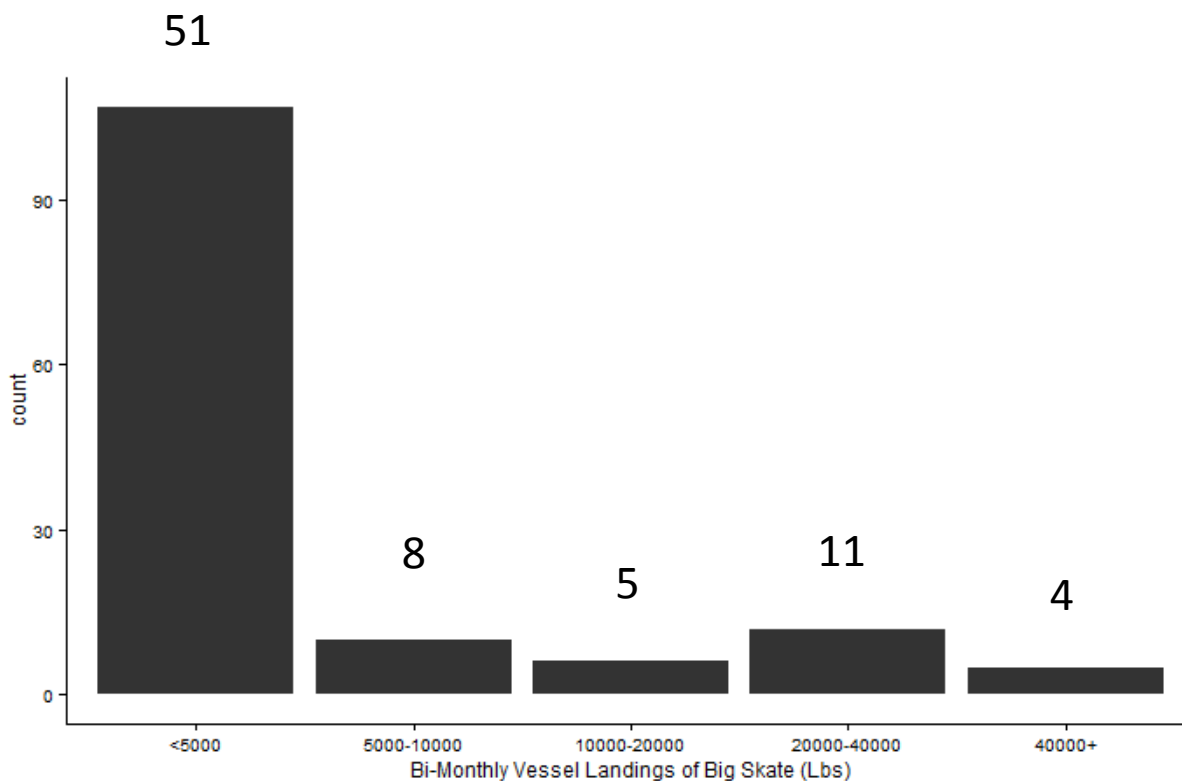


Figure 2: Number of bi-monthly IFQ vessel landings (lbs;y-axis) relative to pounds landed per period in 2014. The number of unique vessels landing per month are provided above each bar.

Management Measures

Since big skate (along with all other endemic skates except longnose skate) were designated as Ecosystem Component (EC) species during the 2015-2016 biennial cycle, there are no harvest specifications established in regulation to manage to for this biennium. However, if the Council would like to reduce the mortality of big skate, the Council could recommend big skate trip limits be implemented through routine inseason action for the shorebased IFQ fishery, where catch is greatest. Alternatively, the shoreward boundary of the RCA could be moved to reduce catch of big skate; however, the GMT believes such adjustments would be more disruptive to the shorebased IFQ program than implementing big skate trip limits. Therefore, shorebased IFQ trip limits will be the focus of the analyses presented in this report.

The GMT notes that implementing a species-specific trip limit for big skate would trigger the need for a sorting requirement in the trawl rationalization program, including the Mothership - Program, and the Catcher/Processor Co-op Program ((660.130(d)). Comments from some of the at-sea

representatives on the GAP during joint session indicated that a requirement for sorting big skate may not create additional burden for these sectors, as they are already sorting big skate to species (e.g., as illustrated in [Informational Report 2, April 2015](#)). If the Council recommends a trip limit for big skate in the shorebased IFQ program, NMFS may request flexibility with regards to the implementation of the sorting requirement.

Trip Limit Options

The GMT recommends the Council consider the range of trip limit alternatives provided in Table 1. During the analysis, several assumptions were made:

1. The most recent West Coast Groundfish Observer Program (WCGOP) estimate of discard mortality of big skate was 78.2 mt in 2013 for all sectors, including set-asides. It was assumed that this level of discard would continue to occur in the fishery moving forward.
2. In [GMT Report 2](#) (April 2015), the initial calculations provided by the GMT assumed a 100 percent discard mortality rate for big skate, which is consistent with the current management assumptions for all skates, except longnose skate where discard mortality is 50 percent.
3. As trip limits would not be available in regulation until June, the same level of big skate landings through Periods 1-3 in 2014 were assumed to have occurred in 2015. Therefore, trip limits are expected only to influence landings in periods 4-6 of 2015.
4. Fishing behavior was assumed to remain the same for those landing at levels below the trip limits for periods 4-6 (i.e., incidental catch is assumed to continue and be landed). Once a trip limit was reached, it was assumed that landings would cease for that period and no additional discard would occur.

Given that the 2015 regulations do not include a big skate harvest specification, the GMT provides the 2014 component overfishing limit (OFL) (458 mt) and 2014 component allowable biological catch (ABC) (317.9 mt) as reference points that the Council could use in evaluating the range of possible trip limits. Below in Table 1, the “low” alternative reflects the maximum trip limit that could be implemented for periods 4-6 with total mortality remaining below the 2014 component ABC. The “high” alternative reflects the maximum trip limit where the total mortality would remain below the 2014 component OFL. In Table 1, the “Landings” column represents the total landings of the shorebased IFQ fishery (both incidental and targeted) under the alternative while the “Total Mortality-All Sectors” column represents the combined total mortality of the shorebased IFQ fishery, the estimated 2014 tribal catch (51 mt)², the estimated 2014 non-IFQ, non-tribal catch (7 mt)³, and the assumed discard mortality of 78 mt from the 2013 WCGOP report. It is important to note that the Tribes could put in separate trip limits for the tribal fishery; however, this analysis assumes status quo harvest from 2014 under all the alternatives.

² Assumed Washington big skate proportion of unspecified skate landings of 95.2 percent

³ Assumed individual state big skate percentages.

Table 1. Possible bi-monthly trip limits for big skate for periods 4-6

Alternative	Landings (mt)	Difference from Status Quo (mt)	Total Mortality-All Sectors (mt)	Over "2014 Component OFL?"	Over "2014 Component ABC?"
STATUS QUO	352	0	489	Y	Y
LOW (2,000 LBS/2 MO)	177	175	313	N	N
HIGH (37,500 LBS/ 2 MO)	318	34	455	N	Y

Potential Revenue Impacts

The different alternatives will have direct revenue effects on both harvesters and processors. The 2014 price per pound of big skate in CA that appears in [Agenda Item E.8.a GMT Report 2 April 2015](#) is \$0.37/lb. Assuming that this price is applicable coastwide in 2015, the direct revenue effect to harvesters of the status quo, low, and high alternatives in thousands (\$2015) are \$284.0, \$145.3, and \$261.1 respectively. The direct effect on processors of the three alternatives can be approximated using the average 2012 (latest available) markup of 1.84 (i.e. processors receive \$1.84 for every \$1.00 of fish purchased) for the “Sharks, Skates, and Rays” category in the [Economic Data Collection Program First Receiver and Shorebased Processor Report \(2009-2012\)](#). This “Sharks, Skates, and Rays” category includes species other than big skate, and at this time, it is unknown what proportion of the category is made up of big skate. Consequently, the following estimates should be viewed as rough approximations of the revenue effects on processors of the alternatives. The direct revenue effect to processors of the status quo, low, and high alternatives in thousands (\$2015) are \$531.8, \$267.4, and \$480.5, respectively.

Discard Mortality Rate Assumptions

The SSC tasked the GMT with doing a literature review on skate discard mortality to determine whether the current rate is appropriate ([Agenda Item E.8.a, Supplemental SSC Report, April, 2015](#)). **The GMT recommends the SSC review a literature review provided by the GMT and recommend whether or not a change to the big skate discard mortality rate is appropriate at the June meeting. If a lower discard mortality rate is adopted, the GMT recommends that the appropriate steps are taken to implement the rate for use in inseason management and in the 2015 Groundfish Mortality Report prepared by WCGOP (i.e., ensure the same values are used in the inseason and post-season catch accounting).**

The Council should consider the potential for future revisions to the 100 percent mortality rate used in the analysis when considering the range of trip limits. For example, if the discard mortality rate adopted is equal to that used for longnose skate (i.e., 50 percent), the range of expected mortality would be 450 mt for the status quo alternative, 274 mt for the low alternative, and 416 mt for the high alternative. All of these values are below the “2014 component OFL” being used in the analysis.

Component Specifications

During the 2013-2014 biennial process, the OFL contribution of big skate to the Other Fish complex was determined using an F_{MSY} harvest rate times a swept area biomass estimate from the NMFS bottom trawl survey ([Agenda Item H.6.a, Supplemental Attachment 6, November 2013](#)). This methodology was reviewed and endorsed by the SSC and would have been the OFL contribution had the decision been to continue managing big skate in the complex in 2015-2016. The GMT notes the NMFS trawl survey is not conducted inshore of 55 m (30 fm) and big skate has a wide depth distribution from 2 to 110 fm (see Table 1-1 in the [2014 SAFE Document](#)). Despite the fact the methodology was considered the best available science by the SSC, the GMT posits this may lead to an OFL estimate for big skate that is biased low. **The recent advent of geostatistical GLMM tools that allow a more spatial analysis of trawl survey CPUEs may be more robust and the GMT recommends such methodologies (and others as appropriate) be explored for determining big skate specifications, if necessary.**

Revisiting the Ecosystem Component Classification

The GMT recommends that the Council reconsider the EC designation for big skate or embark on a broader consideration for all skates (e.g., explore a skate complex) during the development of the 2017-2018 regulations, based on the new information presented in GMT Reports 2 and 6. The GMT notes that such a reconsideration would require an FMP amendment. If the Council concurs, the GMT will provide comment on the most appropriate timeline for such decision-making in June when the Council adopts the process and schedule for the next biennium.

GMT Recommendations

- **The GMT recommends the Council consider a coastwide trip limit for big skate in the shorebased IFQ Program while taking into account the uncertainty in predicting behavior, revenue impacts, and potential change to the assumed discard mortality rate.**
- **The GMT recommends the SSC review the discard mortality rate literature that will be prepared by the GMT at the June meeting. If a lower discard mortality rate is adopted, the GMT recommends that the appropriate steps are taken to implement the rate for use in inseason management and in the 2015 Groundfish Mortality Report prepared by the West Coast Groundfish Observer Program (i.e., ensure the same values are used in the inseason and post-season catch accounting).**
- **The GMT recommends that the Council reconsider the EC designation for big skate or embark on a broader consideration for all skates (e.g., explore a skate complex) during the development of the 2017-2018 regulations.**