

## GROUND FISH MANAGEMENT TEAM (GMT) REPORT ON BIG SKATE CATCH AND THE ECOSYSTEM COMPONENT DESIGNATION

The Groundfish Management Team (GMT) discussed inseason issues at its February 2015 meeting in Seattle. Comments are provided in this report on big skate landings and discussion of tracking catch of Ecosystem Component (EC) species.

### **Big Skate Catch and its Designation as an Ecosystem Component Species**

The Pacific Fishery Management Council (Council) recommended bringing all endemic skates into the groundfish Fishery Management Plan (FMP) under the 2015-2016 biennial harvest specifications and management measures process. In addition, the Council recommended removing skates, except longnose skate, from the Other Fish complex and designating all remaining skates in the FMP as EC species. Sorting has been required for longnose skate since 2009, when the species was managed to stock-specific harvest specifications, and the Council recommended continuing stock-specific management for longnose skate. Some of the criteria for EC species shown in National Standard 1 (NS1) Guidelines include: (a) not targeted, (b) generally not retained for sale or personal use, (c) not subject to overfishing, and (d) not determined to be overfished or approaching the overfishing limit. EC species are monitored, but they do not require specification of an annual catch limit or status determination criteria.

When the Council considered designating all skates except longnose skate as EC species, the GMT estimated that catches of big skate averaged 95 mt from 2007–2011 (see Table 4-33 in 2015-2016 Harvest Specifications and Management Measures Final Environmental Impact Statement; (FEIS). The 2014 component overfishing limit (OFL) and acceptable biological catches (ABC) for big skate within the Other Fish complex was 458 mt and 317.9 mt, respectively (2015-2016 FEIS). The average catch of big skate reported by the GMT would therefore represent 21 percent and 35 percent of the component OFL and ABC. The GMT also showed, however, that for 2010-2012, when longnose skate was required to be sorted, the unidentified skate landings averaged 305 mt. The GMT reported that the number “likely included large amounts of big skate, as species within complexes are not required to be sorted and reported to species unless there is a specified scientific or management need”.

Big skate landings were discussed at the February, 2015 GMT meeting, where new information indicated that recent catches of big skate were higher than previous estimates. That new information preliminarily indicated that catches of the “unspecified skate” market category in PacFIN are predominantly big skate, and that recent catches may be close to or exceed the 2014 component OFL (see below).

The National Marine Fisheries Service (NMFS) spoke to this topic in a letter dated February 26, 2015 that was addressed to Chair, Ms. Dorothy Lowman, of the Council (Agenda Item E.8.a, NMFS Letter). In that letter, NMFS stated that the new information provided by the GMT was too late for incorporation into Amendment 24. NMFS stated that “If the GMT verifies the preliminary information regarding big skate, then the Council would need to initiate a process to

reclassify big skate as a stock in need of conservation and management and “in the fishery”, rather than an EC species.” The next section of this document provides relevant information regarding big skate landings.

The GMT notes that in the letter described above, NMFS discussed the reclassification of Pacific grenadier from a stock “in the fishery” to an EC species. Although NMFS suggests this is inconsistent with the NS1 Guidelines, they stated that catch is low enough to not require conservation and management measures. In addition, NMFS points out that because Pacific grenadier “were part of the Other Fish complex rather than an individual species, the EC classification results in very limited changes from existing management practices.” As such, the GMT has not provided additional information and analysis on the catch of Pacific grenadier in this document.

### **Big Skate and “Unspecified” Skate Landings**

Oregon Department of Fish and Wildlife (ODFW) port biologists recently contacted the GMT regarding large landings of big skate, especially in Astoria, Oregon. The initial PacFIN download prior to the February, 2015 GMT meeting demonstrated that big skate landings increased from 0 mt in 2011 to 39 mt in 2014 (Table 1). In addition, the 2013 groundfish mortality report (Somers et al., 2014), that was released near the end of 2014, showed that the total mortality of big skate was 98.6 mt, of which 78.2 mt was discard mortality. This total mortality estimate of big skate represents 22 percent of the 2014 big skate contribution (458 mt) to the “Other Fish” complex OFL.

After closer inspection of PacFIN and West Coast Groundfish Observer Program (WCGOP) mortality reports, the GMT investigated landings and discard mortality of skates shown as “skate unidentified” by WCGOP and “unspecified” and “other” skate in PacFIN. For this analysis, we show data for only 2011, 2012, and 2014, because a data error was recently identified in PacFIN for “unspecified skate” for 2013. That error is currently in the process of being corrected. It should also be noted that PacFIN landings do not reflect discard mortality amounts as do WCGOP values.

Annual landings and value shown in PacFIN for big skate are shown in Table 1. Here, it can be misinterpreted that big skate landings are generally low, and that big skate landings increased annually from 2011 through 2014. However, these landings represent only data submitted to PacFIN by California, which requires big skate to be reported on fish tickets. Washington does not collect species composition data for skates, whereas Oregon collects species composition information for skates but does not upload these files to PacFIN. Therefore, any big skate landings in Washington and Oregon are contained in the “unspecified” or “other” skate in PacFIN.

**Table 1. Big skate landings <sup>/a</sup> shown in PacFIN for all gear types. Note that these landings are only for California. Oregon collects species composition data for skates but does not upload the data to PacFIN. Washington does not collect species composition data for skates. Data were downloaded from PacFIN (table vdrfd) on March 17, 2015.**

<b>Year</b>	<b>Pounds</b>	<b>Metric tons</b>	<b>Ex-vessel value</b>
2011	914	0	\$257
2012	14,886	7	\$5,674
2013	45,436	21	\$16,809
2014	85,707	39	\$31,922

<sup>a/</sup> Coastwide discard (mt) of big skate shown by WCGOP groundfish mortality reports: 2011 = 73.68, 2012 = 61.6, 2013 = 78.2 mt.

Landings of “unspecified” and “other” skate for Washington, Oregon, and California are shown in Table 2 for 2011, 2012, and 2014. Both market categories are shown in PacFIN for California, but only the “unspecified skate” market category is shown for Oregon and Washington for 2011 - 2014. Hereafter, “unspecified skate” will be meant to include “unspecified skate” and “other skate” combined.

Landings and total ex-vessel value of unspecified skate are highest in Oregon, and range from 243 to 314 mt per year. Unspecified skate landings are lowest in California (Table 2). For all states combined, landings of unspecified skate increased from 323 mt in 2011 to 411 mt in 2014.

**Table 2. "Unspecified" and "other" skate landings downloaded from PacFIN by year and state <sup>/a</sup>. All gear types were included. Data are not shown for 2013 because of a data error that is currently being addressed. Data were downloaded from PacFIN (table vdrfd) on March 17, 2015. These values include commercial, research, and Tribal data.**

State	Year	Pounds	Metric tons	Ex-vessel value
Washington	2011	97,325	44	\$19,871
	2012	180,516	82	\$53,502
	2013	---	---	---
	2014	170,438	77	\$60,872
Oregon	2011	536,580	243	\$188,321
	2012	495,681	225	\$227,381
	2013	---	---	---
	2014	691,265	314	\$286,971
California	2011	78,286	36	\$26,234
	2012	52,052	24	\$15,462
	2013	---	---	---
	2014	44,536	20	\$19,440
TOTAL	2011	712,191	323	\$234,426
	2012	728,249	330	\$296,345
	2013	---	---	---
	2014	906,239	411	\$367,283

<sup>a/</sup> Discard (mt) of unspecified and other skate shown by WCGOP groundfish mortality reports: 2011 = 11.7, 2012 = 4.1, 2013 = 2.5.

### Estimating Big Skate Mortality

The proportion of “unspecified” and “other” skates that could be attributed to big skate in Oregon and Washington is uncertain. In California, it is believed that all big skate landings are represented in Table 1, given the state sorting requirement. Additionally, in the last five years there have been no records of big skate in the species composition sampling that was conducted on the “unspecified” and “other” skate category in California. For Oregon, the GMT recently learned, however, that ODFW has species composition data for “unspecified” skates, but do not upload those data to PacFIN.

In order to provide an estimate of big skate landings for Council consideration in April, the GMT calculated the average percentage of big skate from species compositions of unspecified skate using the ODFW data from 2011-2014 (grand mean, by weight). We applied the mean

percentage of big skate from the ODFW species composition dataset (98 percent; Table 4) to unspecified skate landings in Oregon (314 mt; Table 2) and estimate that 308 mt of big skate were landed in Oregon in 2014 (Table 4). The GMT also applied the mean percentage of big skate from the ODFW species composition dataset (98 percent; Table 4) to unspecified skate landings in Washington (77 mt; Table 2) and estimate landings were 76 mt (Table 4).

**Using the described methodology above, the GMT believes that the 2014 mortality of big skate may be as high as 500.2 mt (Table 4), including the 2013 WCGOP estimate of big skate discard. The 2014 component overfishing limit (OFL) and acceptable biological catch (ABC) for big skate within the Other Fish complex was 458 mt and 317.9 mt, respectively (2015-2016 FEIS).**

**Table 3. Results of species composition for the "unspecified" skate market category for Oregon during 2011-2014. For this example, grand means of species compositions (pounds) by species were calculated by year across all areas, gear types, and periods. The overall grand mean was calculated by summing weights by species across all years, areas, gear types, and periods. This illustration is provided as a simple example. Stratifications by gear type, area, period, and other variables were not completed, and borrowing rules were not implemented. Data were provided by Oregon Department of Fish and Wildlife (ODFW).**

<b>Year</b>	<b>Percent Big Skate</b>
2011	99%
2012	99%
2013	99%
2014 <sup>/a</sup>	94%
<b>Grand mean</b>	<b>98%</b>

a/ The remaining portion of the 2014 species composition consisted 6 percent sandpaper skate, and small amounts of Aleutian skate and longnose skate.

**Table 4. Coastwide estimate of big skate catch in 2014 based on fish ticket data, Oregon species composition data, and WCGOP discard estimates.**

Category	Area	Big Skate a/ (mt)	Estimated Big Skate b/ (mt)
Landings	WA		75.5
	OR		307.7
	CA	39	
Discard c/	Coastwide	78	
<b>TOTAL</b>		<b>500.2</b>	

a/ Big skate landings data for California are reported on the state fish tickets.

b/ The estimated big skate composition for the unspecified and other category on fish tickets assumes 98 percent of the unspecified and other skate landings are big skate. The 98 percent assumption is based on Oregon species composition data from 2011-2014.

c/ The discard estimate is based on the 2013 WCGOP observer program data for big skate only. All discarded skates are assumed to die. If the longnose skate discard mortality rates are applied, only 50 percent (or 39 mt) would die.

The GMT notes, however, that there are many levels of uncertainty in estimating big skate mortality in 2014. **The standard process for estimating mortality typically involves state estimates provided to PacFIN which are paired with WCGOP discard data. The GMT recommends that both partners be involved in a more formal process for estimating historical big skate mortality. Further, the GMT suggests that a Science and Statistical Committee (SSC) review of the proposed methodology might be warranted.** The approach described above is only a preliminary estimate and should be refined. Below we describe necessary caveats to the estimation methodology which should be taken into consideration when developing the final method.

### Uncertainty in Landings Estimates

The grand mean approach for estimating big skate is less complicated than the process for estimating rockfish species compositions. For example, in estimating rockfish species compositions, the data are stratified by port group, gear, and/or period and borrowing rules are applied. The GMT believes that even if the more complicated methodology is applied, the big skate estimate for Oregon would be similar since the species composition of big skate in the unspecified landings is so high (i.e., 98 percent).

The GMT acknowledges that the Oregon species composition data may not be representative of the Washington fisheries. For example, big skate distributions, fishing regulations, markets, and other factors likely vary by state. In Washington, state regulations prohibit all commercial groundfish fishing in state waters; however, both fixed gear and trawling is allowed in state waters in Oregon. Given that big skate are predominately found in waters shallower than 100 fm (see discussion later in the document), there could presumably be areas of big skate abundance in Washington that are closed to commercial fishing. Further, non-tribal trawling is not allowed in the northern part of the Washington coast, from the seaward RCA boundary to the shore north of 48°10' N. lat. Additionally, it is possible that processors in Washington have not been as actively involved in big skate processing as the processors in Oregon.

The GMT understands that other species besides big skate are inadvertently landed in small quantities (i.e., mixed with the catch of marketable skate) but typically are not landed for sale (e.g., sandpaper skate). It is assumed that only longnose skate (sorted separately) and big skate are typically landed for market. The GMT is unaware of other skate species that are landed and sold in appreciable amounts. If other species besides big skate and longnose skate are landed and sold in large volumes in Washington, then the 98 percent applied to unspecified skates may be too high for states other than Oregon. **The Groundfish Advisory Subpanel (GAP) may be most appropriate to advise the Council on other species of skate that might be landed and marketed on the west coast but are reported as unspecified skate.**

### Uncertainty in Discard Mortality Estimates

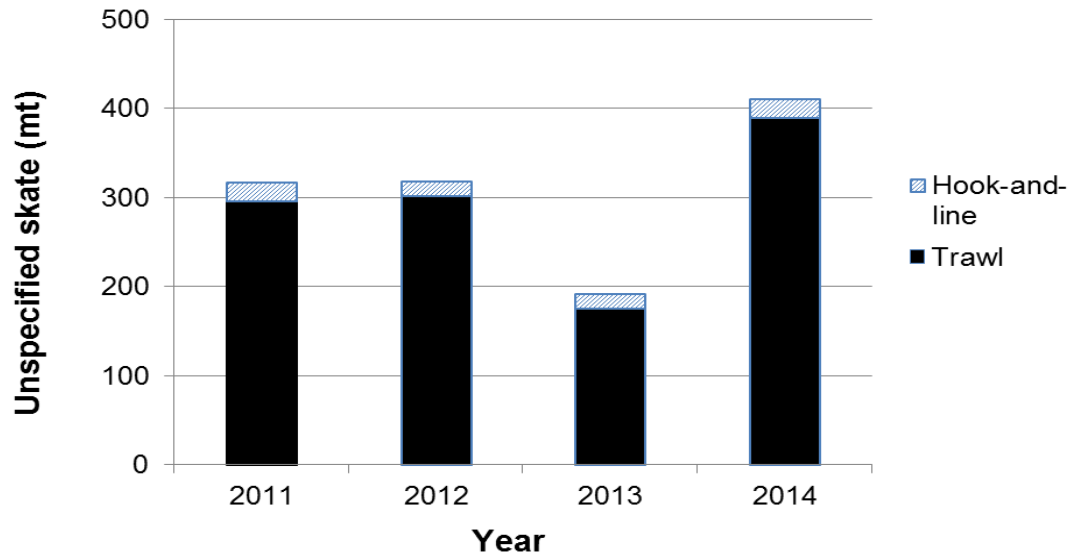
The footnotes to Table 1 and Table 2 provide big skate and unspecified skate discards for 2011, 2012, and 2013 that are provided in WCGOP total mortality reports. The discard amount was fairly consistent among the three years within each market category. The 2013 groundfish mortality report (Somers 2014) shows 78.2 mt of discarded big skate and 2.5 mt of discarded unspecified skate. The percent contribution of big skate to the unspecified skate category is uncertain, because a high percentage of discards likely include species other than big skate (e.g., sandpaper skate). Discard amounts for unspecified skate are extremely small, however, relative to other sources of reported mortality, because WCGOP observers identify most fish to the species level. Therefore, disregarding discard of unspecified skate will likely have little impact on total discard mortality estimates for big skate. We may assume that the amount of big skate discarded during 2013 (78.2 mt) may be similar to discards seen in 2014.

The GMT also notes that stock assessment and management processes both assume that 50 percent of commercially-discarded longnose skates die (see [Groundfish SAFE, 2014](#)); however 100 percent of the other skate species, including big skate, are assumed to die when discarded. The longnose skate discard mortality assumptions were based on tagging studies conducted in Canada, tagged skates were recovered several times in trawl surveys, indicating that skates can survive trawl capture and on-deck sorting time. Anecdotal evidence from commercial fisheries also indicates that skates are generally durable, and can handle capture and release well. However, many factors, such as trawl time, handling techniques, and time spent on the deck certainly affect skate survival. **The GMT suggests that the SSC should review whether the available data supports the application of discard mortality rates to big skate**

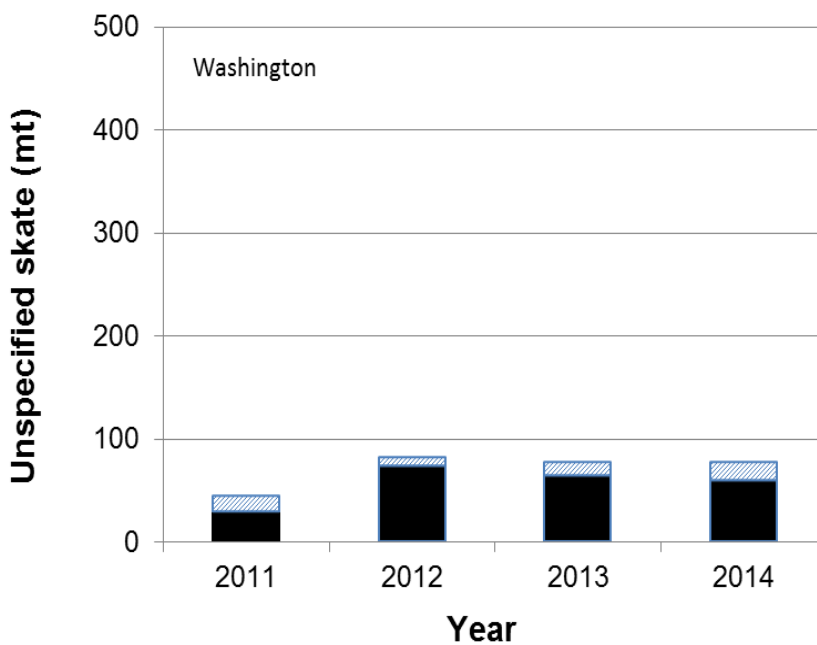
Given the considerations outlined above, the GMT estimated a potential lower estimate of big skate mortality in 2014. **For example, if it is determined that 50 percent of the discarded big skate survive; the mortality of big skate in 2014 would be 461 mt, which is 3 mt greater than the big skate component OFL in 2014.** Mortality may be even lower if the unspecified skate categories in Washington contain less than 98 percent big skate.

### Description Unspecified Skate Catch and Landings

Most of the coastwide landings of unspecified skate are by trawl vessels (Figure 1), the majority of which is bottom trawl. The remainder of the unspecified skate landings is mostly by hook-and-line, although traces landings are also landed by pot vessels. Most of the hook-and-line caught skate were landed in Washington (Figure 2).



**Figure 1. Coastwide “unspecified” and “other” skate landings by gear during 2011 – 2014. Data were downloaded from PacFIN (table vdrfd) on March 17, 2015. These values include commercial and Tribal data.**

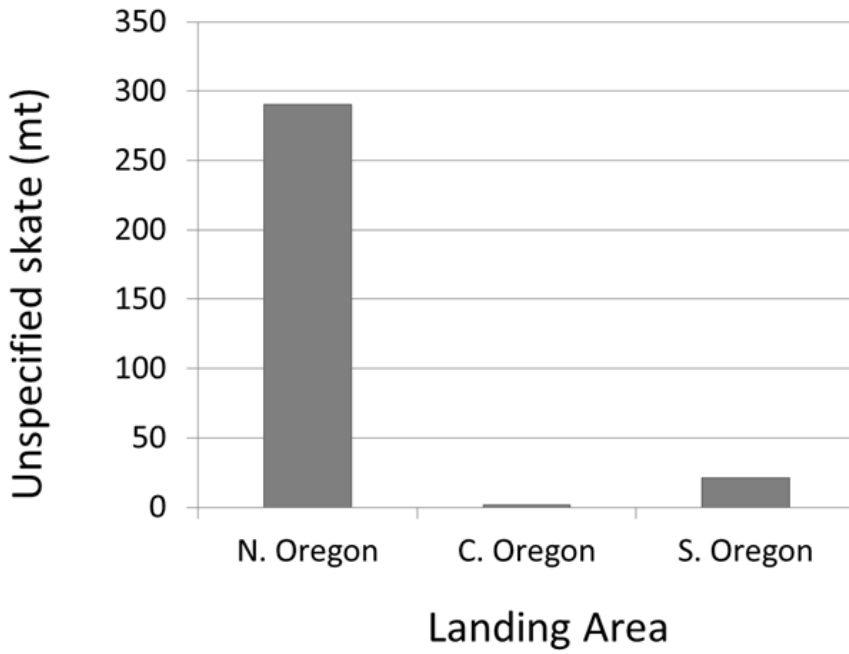


**Figure 2. Washington unspecified skate landings by gear during 2011 – 2014. Data were downloaded from PacFIN (table vdrfd) on March 17, 2015. Solid black = trawl and light hatch = hook-and-line. Data includes both Tribal and non-Tribal catch.**

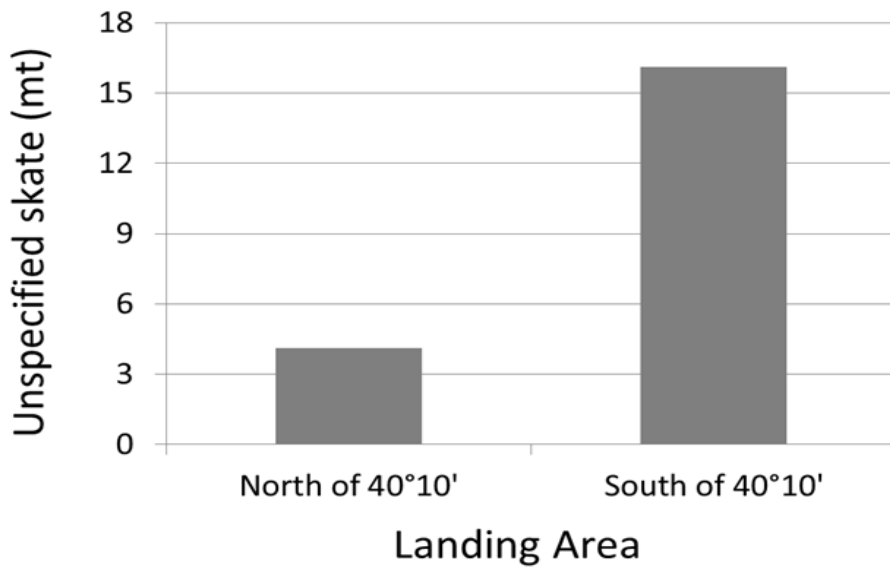


Most of the Oregon landings of unspecified skate occur in northern Oregon (**Figure 3**; e.g., Astoria). Port biologists from the north coast have informed GMT members that some fishermen are targeting skate. Most unspecified skate landings in California occur south of 40°10' N latitude (**Figure 3**). Due to confidentiality concerns, Washington landings can only be reported statewide, and are not shown in Figure 3. However, most landings occur in the northern part of the state.

**Oregon**



**California**



**Figure 3. Unspecified and other skate landings by region for Oregon, and California during 2014. Only commercial landings data are shown. Data were downloaded from PacFIN (table vdrfd) on March 17, 2015.**

The GMT understands that strong overseas markets have developed and some processors may be requesting big skate landings. However, the GMT is uncertain about markets and demand regarding skate. The GAP may be able to provide more specifics and more accurate information regarding these issues for big skate, as well as other skate species (including differences among regions).

Big skate are typically found in shallow waters less than 110 fathoms (2015-2016 FEIS). Their distribution along the U.S. west coast is highest in water shallower than 100 fathoms, as shown by Figure 4 where largest densities caught by the West Coast Groundfish Trawl Survey (Bradburn et al., 2011) were at depths ranging from 55-183 m (= 30-100 fathoms). The GMT also showed that highest commercial trawl catches were at depths less than 100 fathoms using WCGOP data ([Agenda Item H.4.b, GMT Report](#), November, 2013).

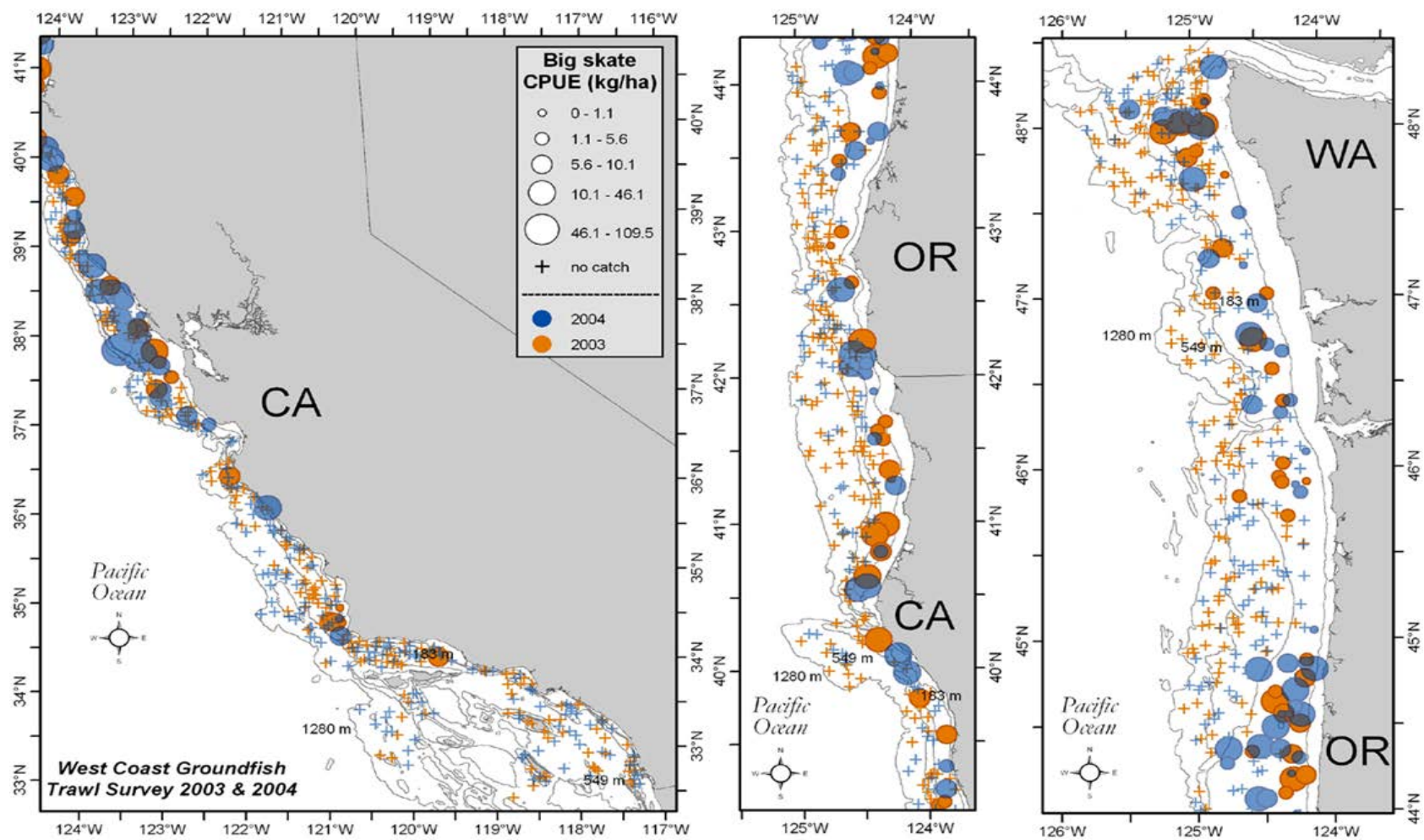


Figure 4. Coastal distribution of big skate catch per unit effort in the West Coast bottom trawl groundfish survey (CPUE in kg/ha; Bradburn et al., 2011). Depth bins shown are 55-183 m, 184-549 m, and 550-1,280 m).

## Tracking Ecosystem Component Species – Differences and Similarities Among State Sampling Programs

With the exception of maximized-retention fisheries (e.g., shoreside hake), fishermen sort their catch on deck with the intention of retaining and landing only fish that they intend to sell. Landings of species that have no value or cannot be sold are generally very small (e.g., sandpaper skate). These landings are inadvertent, and represent species that slip past the sorting process on the vessel’s deck and accidentally get mixed with the catch in the fish hold. Once reaching the fish plant, the fate of these “unmarketable” species may vary among states.

- In Oregon, it is required to record pounds of “weighbacks” that have no commercial value on fish tickets, with the exception of species or species groups that are exempted (OAR 635-006-0210). These “weighbacks” may be recorded by species or species groups (e.g., sandpaper skate that were inadvertently mixed with longnose skate may be part of the “weighbacks” and may be recorded on fish tickets as “unspecified skate”). Other species with no value that are inadvertently landed and exempt from being recorded on fish tickets (e.g., slender sole, deepsea sole, snailfish, etc.) are not weighed or recorded on a fish ticket. Instead, processors sort these species into a “trash” dumpster, where no further sampling takes place. The amount of fish that can be found in a “trash” dumpster is typically very small (for example, tens of pounds). If a species becomes marketable and is sold, it will not be sorted to the “trash” dumpster, but instead will be sold and recorded on the fish ticket using an existing market category (e.g., other skate or other grenadier).
- In Washington and California, all market categories (species or species groups) are recorded on a fish ticket, even those with no value. Therefore, all market categories can be tracked in Washington and California, even those not sold. These unsold species can be labeled in species groups such as “unspecified skate” or “miscellaneous groundfish”. Similar to Oregon, the amounts of these landings with no value are low, because fishermen don’t want to land appreciable amounts of fish that will not sell.

Totes or bins at processing plants containing fish that are intended for sale may show some level of contamination with species that were not intended for sale. For example in Oregon, any skate sold, except for longnose skate, will be recorded on fish tickets as “unspecified skate”. Species composition sampling would be required to identify species within the “unspecified skate” category. Species composition sampling of skate landings is different among states:

- California provided species composition samples for skate to PacFIN, where it was applied and big skate landings (some) are shown.
- Oregon has species composition data available for skates (and other non-rockfish species), but currently is limited to uploading only rockfish species composition data to PacFIN due to technical constraints in ODFW’s data systems.
- Washington does not conduct species composition sampling for skate.

## Management of Big Skate as Ecosystem Component Species or “In the Fishery”

Regardless of whether big skate is designated as an EC species, or managed “in the fishery” within the Other Fish complex, management for the species can be similar. For example, routine adjustments to trip limits can be applied to big skate designated under either classification.

Currently, there are no trawl trip limits for big skate specified in regulation, which means landings are unlimited. Big skate trip limits are listed as a routine management measure for the shorebased individual fishing quota (IFQ) program (§660.60(c)(1)(i)). As such, the Council could recommend big skate trip limits and NMFS could implement it inseason, or as appropriate. The GMT believes that if the big skate trip limits were implemented then sorting in the shorebased IFQ program would be required. The GMT is uncertain whether a big skate or a general skate trip limit could be implemented as a routine inseason action for the non-trawl fisheries through routine inseason action; however as discussed previously, catches in this sector are relatively low and thus trip limit adjustment might not be needed.

In April, the Council may consider trip limit adjustments, given the possible range of big skate mortality in 2014 estimated by the GMT (461 to 500 mt) and the guidance provided in the NMFS letter (Agenda Item E.8.a, NMFS Letter). If the Council recommends trip limit adjustments to limit big skate landings, the GMT will need guidance as to whether the trip limits should provide for targeted opportunities, and at what level, or for bycatch only (i.e., more similar to the EC species designation expectations). The GMT intends to review historical big skate catch by month and provide a supplemental report with options relative to the timing of Council action (e.g., April or June) and implementation (e.g., May or July).

To improve coastwide estimates of big skate mortality, the Council may also wish to consider a sorting requirement for all sectors (i.e., not just for the shorebased IFQ program when trip limits are implemented). Implementing a sorting requirement would require a regulatory amendment (at least two Council meetings).

## Recommendations

The GMT recommends that the Council:

- 1. Discuss if there is a need for Oregon to upload their non-rockfish species composition data to PacFIN (specifically skate species composition data).**
- 2. Discuss how the big skate component of unspecified skates in Washington should be estimated, because species composition samples are not available.**
- 3. The GMT recommends that Scientific and Statistical Committee (SSC) review the proposed methodology for estimating big skate mortality, including whether discard mortality rates should be applied.**
- 4. Provide guidance to the GMT on Council's preferred timeline for the completion of management measure analyses for big skate trip limits.**
- 5. Provide guidance to the GMT on whether or not trip limit alternatives should provide for targeted opportunities and if so, at what level, or for bycatch only.**
- 6. The Council should consider if a sorting requirement for all sectors is needed, which would require a regulatory amendment.**

## References

Bradburn, M.J., A.A. Keller, and B.H. Horness. 2011. The 2003 to 2008 U.S. West Coast bottom trawl surveys of groundfish resources off Washington, Oregon, and California: Estimates of distribution, abundance, length, and age composition. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-114, 323 p.

Somers, K.A., M. Bellman, J. Jannot, N. Riley, and J. McVeigh. 2014. Estimated discard and catch of groundfish species in the 2013 U.S. west coast fisheries. NOAA Fisheries, NWFSC Observer Program, 2725 Montlake Blvd E., Seattle, WA 98112.