New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
E.F. "Terry" Stockwell III, *Chairman* | Thomas A. Nies, *Executive Director*

MEMORANDUM

DATE: June 6, 2016

TO: Groundfish Committee

FROM: Groundfish Plan Development Team

SUBJECT: **Potential approaches for allocating northern windowpane flounder to groundfish fishery sectors and the common pool**

The Groundfish Plan Development Team (PDT) met on May 11, 2016 in Boston, Massachusetts to discuss potential approaches for developing allocations of northern windowpane flounder for groundfish sectors and the Atlantic sea scallop fishery. As a follow-up to the PDT memo dated May 31, 2016, this memo focusses on the topic of allocation of northern windowpane flounder to groundfish sectors. The following summarizes preliminary PDT analysis.

A. Background

Committee Tasking

At its April 7, 2016 meeting, the Groundfish Committee tasked the Groundfish PDT with developing approaches for allocating northern windowpane flounder to groundfish sectors using other allocated groundfish stocks as proxies.

B. Preliminary analysis

1. Location of northern windowpane flounder discards

The northern windowpane flounder stock lies in the Gulf of Maine (GOM), Inshore Georges Bank (IGB), and Offshore Georges Bank (OGB) broad stock areas. Based on observer data, the stock is most frequently encountered in the OGB broad stock area (Figure 1). The vast majority of observed northern windowpane discards on sector trips occurred in this broad stock area during fishing years 2010-2015, with relatively small amounts of observed discards occurring in the GOM and IGB areas. For all three broad stock areas, northern windowpane is generally encountered on hauls that catch other groundfish and/or flatfish. For OGB and GOM, roughly 98% of observed, sector hauls catching northern windowpane during fishing years 2010-2015 also caught other flatfish. For IGB, co-occurrence of catch was at 78% (Table 1). When interpreting the co-occurrence percentages provided throughout the analysis, co-occurrence

means the stocks of interest were present together (e.g., on the same haul or trip). It does not take into account the magnitude of catches of each species. For example, the co-occurrence analysis considers 1 lb. of windowpane flounder and 1000 lbs. of winter flounder to be the same as 1000 lbs. of windowpane flounder and 1 lb. winter flounder.

Figure 1: Northern windowpane flounder observed discards on sector trips by broad stock area, fishing years 2010-2015.

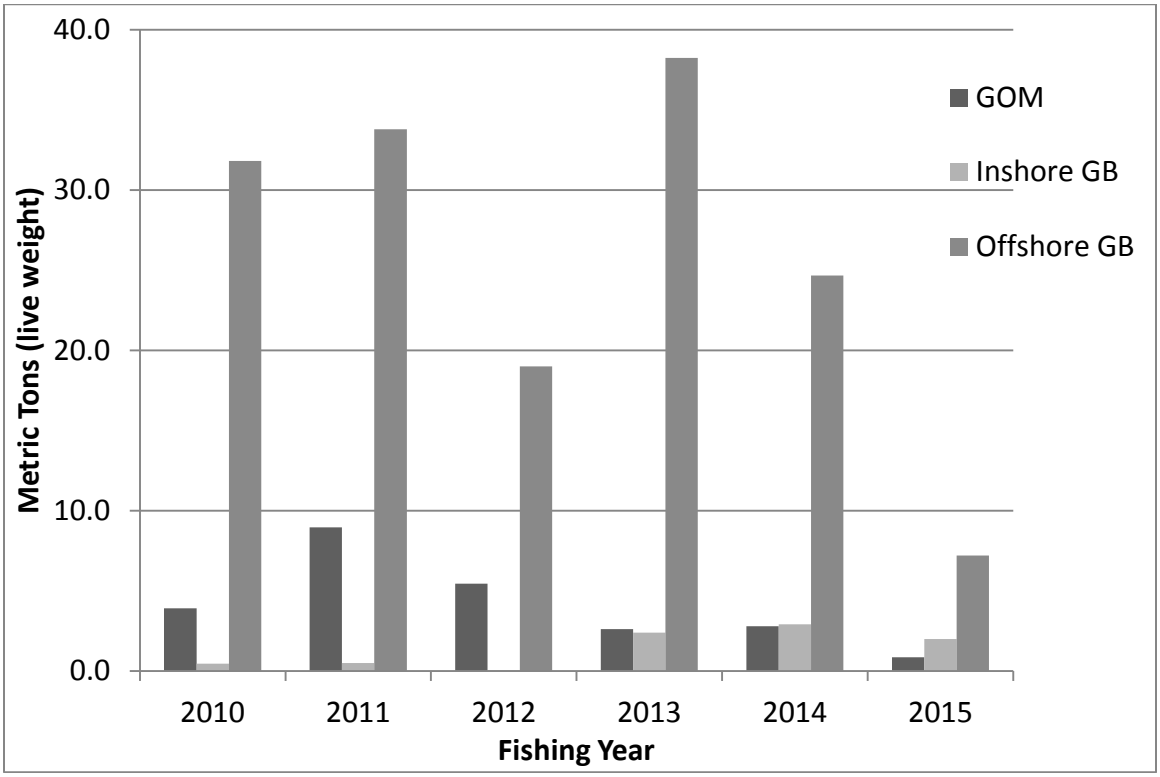


Table 1: Co-occurrence of groundfish and flatfish with northern windowpane flounder on observed hauls containing >0 lbs. of windowpane; sector trips, fishing years 2010-2015.

	# Hauls containing N. Windowpane	# Hauls containing other groundfish	% containing other groundfish	# Hauls containing other flatfish	% containing other flatfish
Gulf of Maine	5,054	5,045	99.8%	4,950	97.9%
Inshore Georges Bank	1,114	903	81.1%	865	77.6%
Offshore Georges Bank	8,975	8,926	99.5%	8,842	98.5%

2. Flatfish stocks caught with northern windowpane flounder (haul level)

Georges Bank

In terms of other flatfish stocks caught with northern windowpane flounder, hauls occurring on GB exhibit different trends than those occurring in the GOM. For 2010-2015 observed, sector hauls encountering northern windowpane either on OGB or IGB, winter flounder was the most frequently caught flatfish stock (other than northern windowpane flounder) both in terms of the percentage of hauls (61% for IGB; 91% for OGB) and the volume of catch (86 mt for IGB; 1,188 mt for OGB). Yellowtail flounder was second both in terms of the percentage of hauls (28% for IGB; 64% for OGB) and the volume of catch (6 mt for IGB; 400 mt for OGB) (Table 2 & Table 3). It should be noted however that for fishing years 2010-2011, the number of windowpane hauls containing yellowtail flounder on OGB was around 80%, and that number has since fallen to roughly 45% for fishing years 2013-2015 (Table 4). This could be an indication that while northern windowpane flounder tends to be caught with winter flounder, more so than any other flatfish stock on GB, the low quotas and poor stock status of GB yellowtail flounder make co-occurrence of windowpane flounder and yellowtail flounder less likely than would otherwise be the case.

Gulf of Maine

For 2010-2015 observed, sector hauls encountering northern windowpane flounder in the GOM, yellowtail flounder was the most frequently caught flatfish stock (other than northern windowpane flounder) both in terms of the percentage of hauls (92%) and the volume of catch (327 mt). Winter flounder was second both in terms of the percentage of hauls (86%) and the volume of catch (124 mt) (Table 2 & Table 3). For every fishing year in the 2010-2015 time period, yellowtail flounder occurred in a larger percentage of windowpane hauls than winter flounder, though not by a wide margin (Table 4). It should be noted however that the quota levels for winter flounder and yellowtail flounder in the GOM are entirely different than those for the GB stocks of these two species. In the GOM, yellowtail flounder has had higher quotas than winter flounder every year since 2010; certainly factoring into the higher co-occurrence of windowpane flounder with yellowtail in the GOM, rather than winter flounder.

Table 2: Co-occurrence of flatfish stocks with northern windowpane flounder on observed hauls containing >0 lbs. of windowpane; sector trips, fishing years 2010-2015.

	# Hauls containing N. Windowpane	American Plaice	Witch Flounder	Winter Flounder	Yellowtail Flounder
Gulf of Maine	5,054	59.7%	37.4%	85.6%	92.3%
Inshore Georges Bank	1,114	16.1%	13.8%	61.0%	28.2%
Offshore Georges Bank	8,975	19.4%	7.6%	91.0%	64.3%

Table 3: Total catch (mt) of flatfish stocks with northern windowpane flounder on observed hauls containing >0 lbs. of windowpane; sector trips, fishing years 2010-2015.

	Northern Windowpane	American Plaice	Witch Flounder	Winter Flounder	Yellowtail Flounder
Gulf of Maine	24.5	53.8	50.4	124.4	327.2
Inshore Georges Bank	8.3	3.3	2.4	85.8	6.1
Offshore Georges Bank	154.7	27.1	8.7	1,188.1	400.2

Table 4: Percentage of hauls containing northern windowpane also containing other flatfish species; observed sector trips

Broad stock area/ Fishing Year	# Hauls containing N. Windowpane	American Plaice	Witch Flounder	Winter Flounder	Yellowtail Flounder
Gulf of Maine					
2010	930	58.0%	26.5%	77.8%	91.6%
2011	1743	53.4%	28.9%	84.5%	91.9%
2012	1308	70.5%	49.8%	91.6%	95.0%
2013	459	59.0%	42.3%	86.9%	90.0%
2014	404	56.7%	46.8%	86.9%	92.8%
2015	210	58.6%	50.0%	85.7%	87.1%
Total	**5054**	**59.7%**	**37.4%**	**85.6%**	**92.3%**
Inshore Georges Bank					
2010	122	43.4%	30.3%	38.5%	48.4%
2011	176	36.9%	37.5%	45.5%	36.9%
2012	63	20.6%	19.0%	17.5%	22.2%
2013	175	10.9%	10.3%	74.3%	26.9%
2014	286	8.4%	4.5%	62.6%	30.1%
2015	292	1.7%	2.7%	79.5%	14.7%
Total	**1114**	**16.1%**	**13.8%**	**61.0%**	**28.2%**
Offshore Georges Bank					
2010	2168	29.4%	11.7%	89.0%	78.8%
2011	2509	21.0%	7.9%	90.6%	80.1%
2012	1170	14.5%	9.4%	90.8%	57.5%
2013	1207	6.8%	2.5%	96.7%	44.6%
2014	1275	19.9%	5.6%	88.5%	43.1%
2015	646	11.5%	3.1%	93.0%	45.5%
Total	**8975**	**19.4%**	**7.6%**	**91.0%**	**64.3%**

3. Flatfish stocks caught with northern windowpane flounder (trip level)

Haul level data was aggregated to the trip level to test if there was a correlation between increased winter flounder or yellowtail flounder catch compared to northern windowpane flounder catch for both GB and GOM. While the haul level data certainly showed winter flounder (and to a lesser extent yellowtail flounder) to be caught on the same hauls as windowpane flounder on GB, there was essentially no correlation between the amount of winter flounder caught compared with the amount of windowpane flounder caught on a GB trip (Figure 2). Similarly, while the haul level data certainly showed yellowtail flounder (and to a lesser extent winter flounder) to be caught on the same hauls as windowpane flounder in the GOM, there was essentially no correlation between the amount of yellowtail flounder caught vs. the amount of windowpane flounder caught on a GOM trip (Figure 3).

This could be an indication that the windowpane stock is "patchy" and a vessel may run into a large amount of windowpane flounder even if it was not fishing especially hard for winter flounder or yellowtail flounder. Conversely, a vessel may run into a small amount of windowpane flounder when catching a great deal of winter flounder or yellowtail flounder.

Figure 2: Trip level catch of Georges Bank winter flounder catch vs. northern windowpane flounder catch (discards); sector trips, fishing years 2010-2015

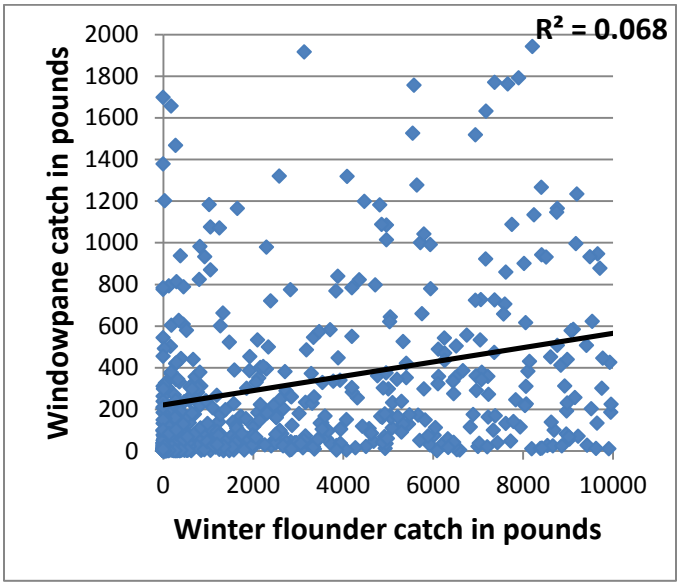
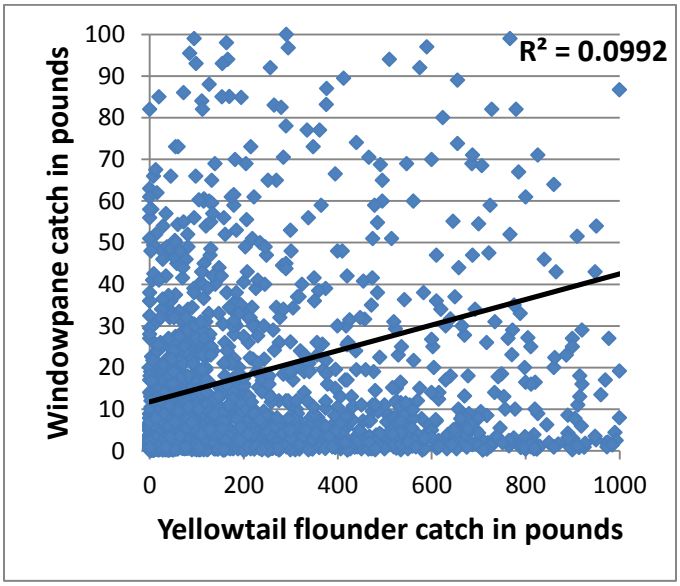


Figure 3: Trip level catch of Gulf of Maine yellowtail flounder catch vs. northern windowpane flounder catch (discards); sector trips, fishing years 2010-2015



C. PDT Discussion

Based on the information examined thus far, the initial findings of the PDT indicate a lack of correlation between catches of windowpane flounder and other specific groundfish stocks to use as a basis for allocation. The PDT plans to examine catches in more detail at the haul level before making its final determination on the matter. Perhaps there is a better overall relationship between total groundfish caught or total flatfish caught with windowpane flounder caught. For example, a basket of stocks or perhaps the total flatfish ACE may be a better predictor of total windowpane flounder caught for a sector.