

## Flatfish Scallop Sub-ACLs and Accountability Measures

- **PDT: We do not have CTE tasking to begin development of AM alternatives. There is a recommendation from the Council to develop AMs consistent to the extent feasible with gear modifications (5 row apron) for other flatfish AMs.**
- **All groundfish stocks will be assessed in 2017. The status and OFL/ABC for flatfish stocks may change as a result.**
- **FOR PDT MEETING:**
  - **Develop initial input for the AP/CTE that can inform their initial discussions and CTE tasking for the PDT in March.**
    - **Identify the spatial/temporal distribution of flatfish, and potentially recommend general areas where AMs would likely be effective in reducing catch.**
  - **Consider the sub-ACLs and catch reduction needs in light of Council recommendation from June 2016 (gear mods preferred, if feasible)**
    - **What is our reduction target? Is there a target? Thoughts on the % targets currently used in the GB YT AM?**
    - **Given spatial mgmt. – use a multi-year average?**
    - **What results from gear work to reduce flatfish bycatch are ready?**
  - **Assess PDT resources – who can help to develop measures once we have CTE tasking?**

### 1.1 Background

The Council has identified the creation and modification of flatfish accountability measures as a 2017 work priority. Currently, the scallop fishery has sub-ACLs and AMs in place for three flatfish stocks managed through the groundfish FMP: GB yellowtail, SNE/MA yellowtail, and southern windowpane flounder. The Council has recommended that a scallop sub-ACL for northern windowpane be established through Framework 56, with the development of accountability measures for this stock in the next available scallop action. Existing scallop fishery AMs vary by permit category and gear type. The Scallop AP, Committee, and full Council have expressed interest in redesigning the AMs for GB yellowtail flounder and SNE/MA yellowtail flounder to make AMs as consistent to the extent feasible with gear modification AMs for southern windowpane flounder (Council Motion #4a, June 22, 2016).

**Main motion:**

to recommend making all flatfish bycatch accountability measures consistent to the extent feasible with the gear modification accountability measure for southern windowpane flounder. In light of resource constraints with respect to FW 28, this recommendation should be considered as a priority for FW29.

The main motion as amended *carried* unanimously on a show of hands (17/0/0).

The above motion was not pursued in 2016 because of resource constraints and because the Council felt that revisiting existing AMs could be done in concert in with a regulatory requirement to develop an AM for northern windowpane flounder. Based on this motion, and varying circumstances of each stock (potential for triggering current AM), it may be worth prioritizing development of AMs in the following way:

1. Northern windowpane flounder – Regulatory Requirement
2. GB yellowtail flounder – Projected catch in 2017 higher than sub-ACL (Table 1)
3. SNE/MA yellowtail flounder – Projected catch in 2017 lower than sub-ACL (Table 1)
4. Southern windowpane – N/A – Model AMs for other stocks on this approach?

## **1.2 Proposed Changes to Accountability Measure Triggers for GB YT and NWP flounder**

The Council’s scallop fishery AM implementation policy states that an AM will be implemented if the sub-ACL is exceed and the overall ACL is exceeded, or 150% of scallop sub-ACL is exceeded. This policy applies to all stocks with a designated sub-ACL. In groundfish FW 56, the Council voted to enact a “temporary exception with a two year sunset provision” on the 150% AM trigger for both Georges Bank yellowtail and Northern windowpane (Figure 1 and Figure 2). In practice, this means that an AM will only trigger for these stocks if the scallop sub-ACL and overall ACL is exceeded. This sunset exception would not apply to southern windowpane flounder or SNE/MA YT. While these exceptions are recommended by the Council, they have not been codified in a final rule by NMFS.

**Figure 1 - Council Motion from November 2016 meeting on the scallop AM implementation policy for GB YT.**

### **Framework Adjustment 56**

#### Sea Scallop Fishery

13. Mr. Terry Alexander moved and Mr. Kendall seconded:  
that the Council select in section 4.1.2 sub-Option 3A temporary exception with a two year sunset provision, to the scallop fishery AM implementation policy for the GB yellowtail flounder stock.

The motion *carried* on a show of hands (16/0/0/1).

**Figure 2 - Council Motion from November 2016 meeting on the scallop AM implementation policy for northern windowpane flounder.**

<u>Northern Windowpane Flounder</u>	
15.	Mr. Terry Alexander moved and Mr. Stockwell seconded: that the Council select in Section 4.1.2.2.3.2 sub-Option 3B temporary exception with a two year sunset provision, to the scallop fishery AM implementation policy for the Northern windowpane flounder stock as preferred.
	The motion <i>carried</i> on a show of hands (15/0/1/1).

### 1.3 Projected Scallop Fishery Catch and ACLs in 2017

The scallop fishery's sub-ACLs and projected catch for 2017 is shown in Table 1. While the fishery is anticipated to catch around 1/3<sup>rd</sup> of its sub-ACL for southern windowpane and SNE/MA yellowtail, projections indicate that the fishery may exceed the sub-ACL for GB YT and northern windowpane. The sub-ACL for northern windowpane is expected to be adopted in FW56 in the spring/summer of 2017. This means that the AM developed for NWP in the next available action could take effect in FY2018 if it is determined that the scallop fishery exceeds the sub-ACL and the overall sub-ACL is exceeded.

**Table 1 – Comparison of estimated catch associated with FY 2017 sub-ACLs.**

	GB YT	SNE/MA YT	So. Windowpane	N. Windowpane
2017 sub-ACL	32	34	209	38
Projected catch estimates	63.21	10.66	77.85	103.33
% of 2017 sub-ACL	198%	31%	37%	272%

**Table 2 - Recent ABC, ACL, and catch of Northern windowpane flounder**

				Northern Windowpane Flounder Catch (mt)				
				Groundfish Fishery		Sub-Components with No AMs		
FY	ABC	ACL	Total Catch	Sector	Common Pool	Scallop Fishery	State Waters	Other
2010	169	161	162.6	151.7	1.8	8.2	0	9.1
2011	169	161	191.3	156.5	0.3	33.0	0	34.8
2012	173	163	208.9	129.5	0.1	75.7	2.3	77
2013	151	144	280.1	237.3	0.2	40.7	0.9	41.6
2014	151	144	269.3	157.4	0.3	99.7	2.7	108.9
2015	151	144	189.8	73.6	0.0	114.6	1.3	114.9

Source: NMFS Greater Atlantic Regional Office, Final Year End Catch Reports for 2010, 2011, 2012, 2013, 2014, 2015. <http://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/nemultispecies.html>

Note: 'Other' sub-component catch includes scallop catch, in addition to other fisheries. Scallop fishery catches are shown for comparison purposes.

**Table 3 - Comparison of recent scallop bycatch estimates and estimated catch, with 2017 projections.**

		GBYT	SNE/MA YT	SWP	NWP
2013	Allocated	41.5	43.6	183	
	Projected	85.3	66	N/A	
	Actual	37.5	48.6	129.1	
2014	Allocated	50.9	66	183	
	Projected	62.4 - 103.7	61.1 - 67.7	74.4	
	Actual	59	63	136	
2015	Allocated	38	66	183	n/a
	Projected	27.9 - 48.6	54	134	45 - 94
	Actual	29.8	34.6	210.6	114.6
2016	Allocated	42	32	209	n/a
	Projected	26.3	40.4	179.2	88.1
	Actual (YTD)	10	20	86	
2017	Allocated	32	34	209	38 (Council Pref.)
	Projected	62.8 - 63.2	10.66 - 11.9	77.85 - 85.08	102.1 - 103.33
	Actual				

## 1.4 Seasonal Catch of Northern Windowpane and Georges Bank Yellowtail Flounder

The following figures describe the quarterly catch and d/K of NWP and YT flounder, and are based on haul level observer data from FY2006 and FY 2011 (starting March 1 of CY) through the current fishing year (data pulled on 2/10/17). Table 4 provides a breakdown of hauls by LA vessels in the GB YT stock area by statistical reporting area and observer program code (Open, CAI, CAII).

Figure 3 through Figure 8 offer a quarterly comparison of either observed catch or d/K ratios of flatfish catch to kept scallop meats at the haul level. Bycatch estimates for NWP and GB YT are generated based on trip level d/K data (combining haul level information). As CAII only intersects with SRA 562 and a small portion of SRA 525, not all panes in these figures show results. These cases are marked as 'NA' in Table 4.

Table 5 provides the breakdown of observed hauls in SRA 514 and 521 by fleet (LA and LAGC). Both of these reporting areas are within the NWP stock boundary. SRA 514 encompasses the majority of LA and LAGC fishing in the Gulf of Maine, while SRA 521 covers a substantial portion of the Channel to the east of Cape Cod.

Quarters (QTR) follow the calendar year, such that quarter 1 includes January, February, and March.

### For PDT Discussion:

- The stock boundaries of NWP and GBYT overlap in four SRAs.
  - QUESTION: Can the AMs be optimized in time and space to reduce both the catch of both stocks, while accounting for seasonal variation in scallop meat weights?
  - QUESTION: Scale and design of AM (ex: gear mod only in SRA) will in part be driven by the bycatch reduction needs for each stock (ex: projected NWP catch is 272% of sub-ACL) –Consider the Council's preferred for SWP flounder (gear mod in large area on seasonal basis vs. seasonal area closures based on modelling work by NEFSC) How much reduction can be reasonably achieved through a gear modification vs. seasonal area closure?
- **Northern Windowpane AM:** The NWP flounder stock boundary overlaps completely with the GB YT stock boundary, and also includes SRA 521 and the Gulf of Maine.
  - Figure 11 indicates that the majority of scallop landings in the Gulf of Maine come from SRA 514 for both the LA and LAGC components. However, total landings from this area represent a fraction of the overall scallop fishery landings.
  - Figure 9 and Figure 10 suggest that both fleets encounter more NWP in the Q4 (Oct, Nov, Dec) in SRA 514 than at other times of the year.
  - Figure 9 and Figure 10 suggest that the majority of dredge hauls by LA and LAGC vessels in SRA 521 encountered very little windowpane, if any.
  - Plots were generated using haul level observer data from 2006-2016 and 2011-2016. Results are mostly consistent across these different time series.
- **George Bank Yellowtail AM:** The GB YT stock boundary includes four SRAs on Georges Bank, and extends into Canadian waters.

- The Council has taken several actions that may impact the (haul level) catch of YT flounder, including a seasonal closure of CAII AA, and (for a brief time) required retention of yellowtail flounder.

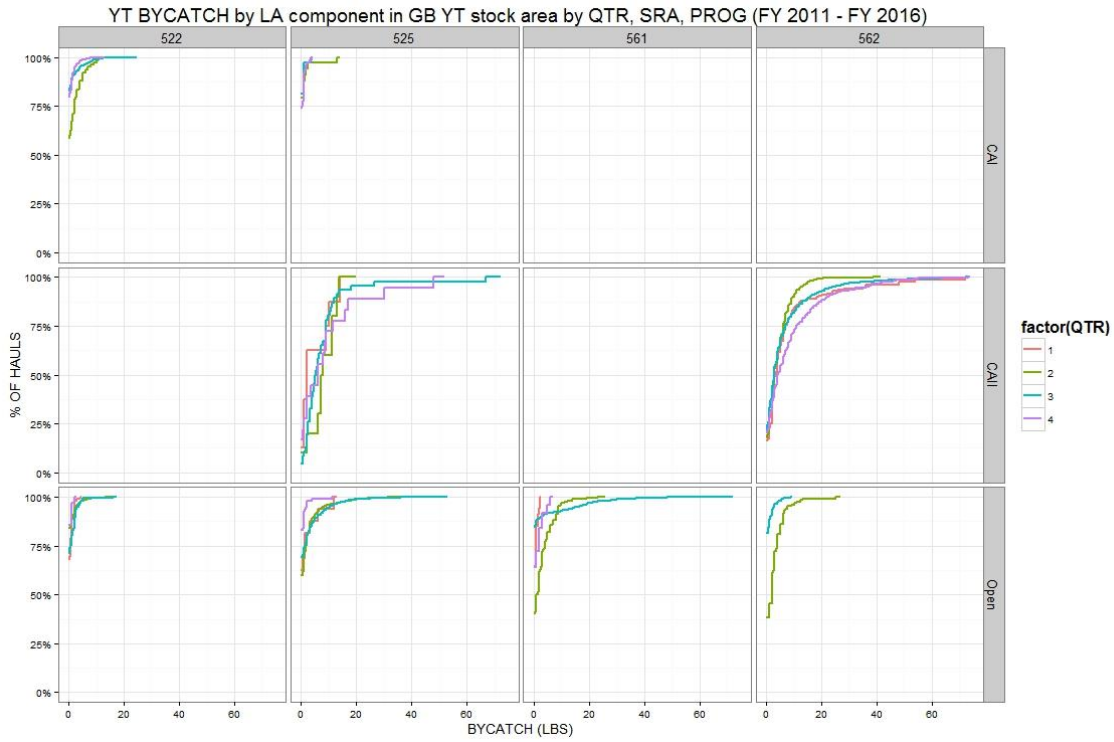
**Table 4 - Number of observed hauls in the GB YT stock area by LA vessels, FY 2011 - FY 2016 (Present, 2/10/17)**

<b>Count of LINK3</b>	<b>SRA</b>				
<b>PROG Code</b>	<b>522</b>	<b>525</b>	<b>561</b>	<b>562</b>	<b>Grand Total</b>
CAI	2891	148	NA	NA	3039
CAII	NA	82	NA	6206	6288
Open	1158	5831	1600	320	8909
<b>Grand Total</b>	<b>4049</b>	<b>6061</b>	<b>1600</b>	<b>6526</b>	<b>18236</b>

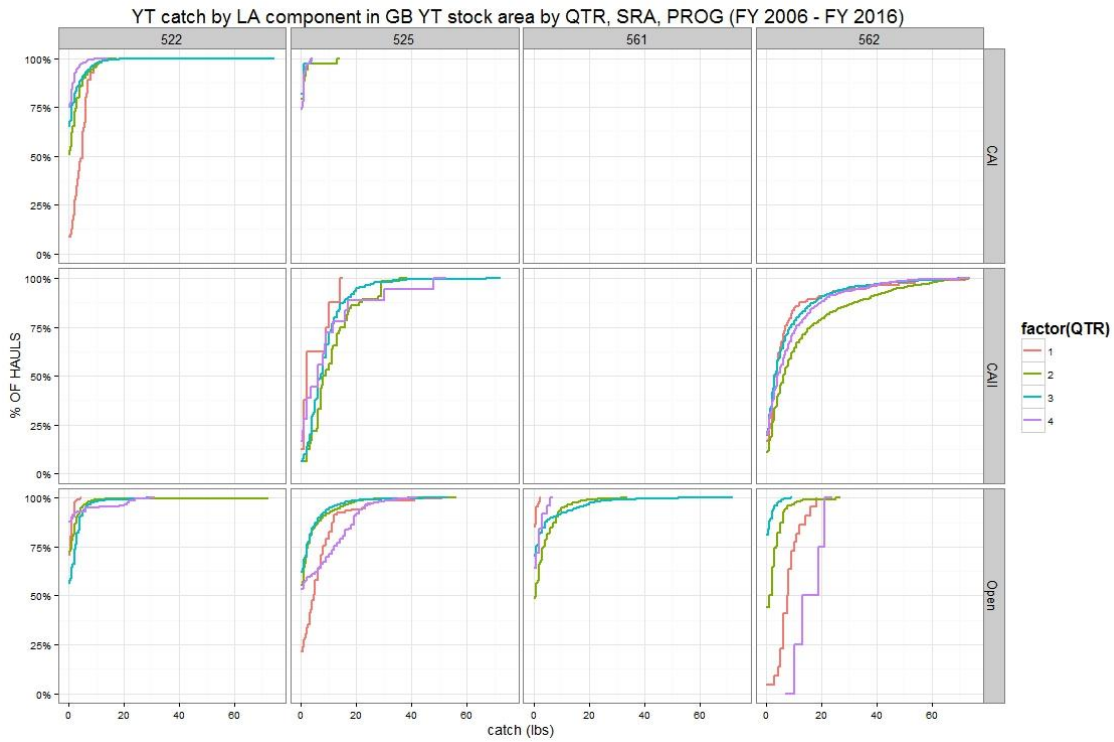
**Table 5 - Number of observed hauls in SRA 514 and SRA 521 by LA vessels, FY 2011 - FY 2016 (Present, 2/10/17)**

<b>Count of LINK3</b>	<b>SRA</b>		
<b>FLEET</b>	<b>514</b>	<b>521</b>	<b>Grand Total</b>
LA	533	12596	13129
LAGC	1643	2796	4439
<b>Grand Total</b>	<b>2176</b>	<b>15392</b>	<b>17568</b>

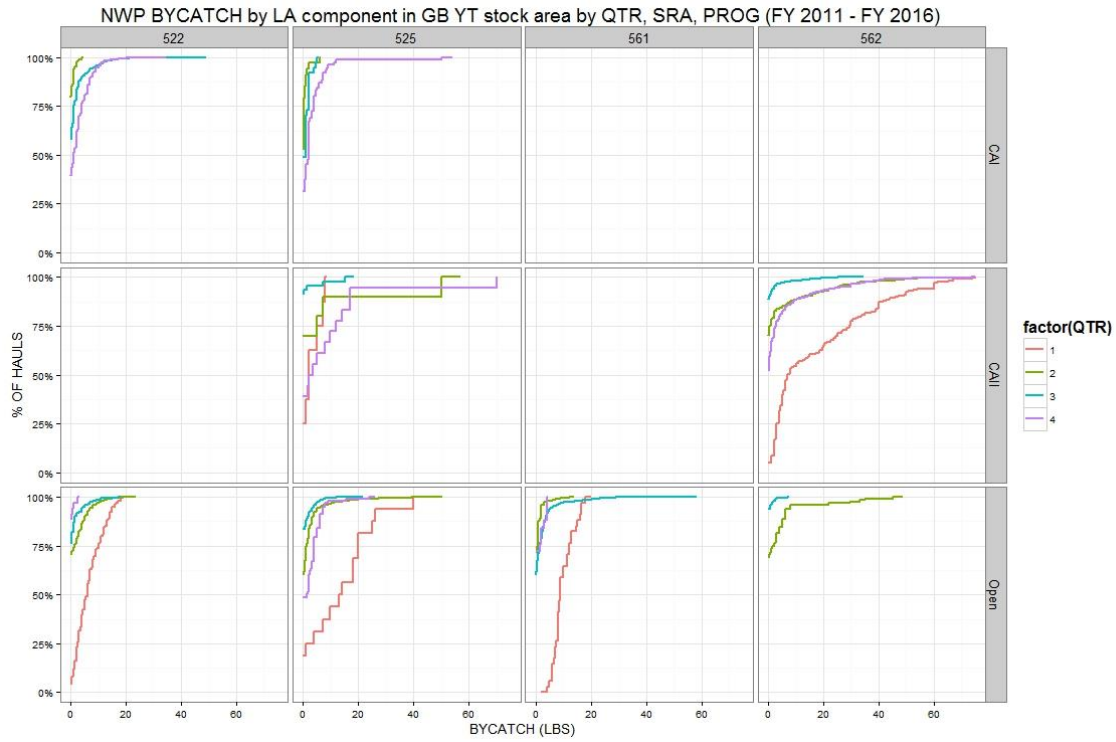
**Figure 3 - Quarterly comparison of GB YT bycatch by LA component by SRA and fishing area using haul level data (FY 2011 – FY 2016).**



**Figure 4 - Quarterly comparison of GB YT bycatch by LA component by SRA and fishing area using haul level data (FY 2006 – FY 2016).**



**Figure 5 - Quarterly comparison of NWP bycatch by LA component by SRA and fishing area using haul level data (FY 2011 – FY 2016).**



**Figure 6 - Quarterly comparison of NWP bycatch by LA component by SRA and fishing area using haul level data (FY 2006 – FY 2016).**

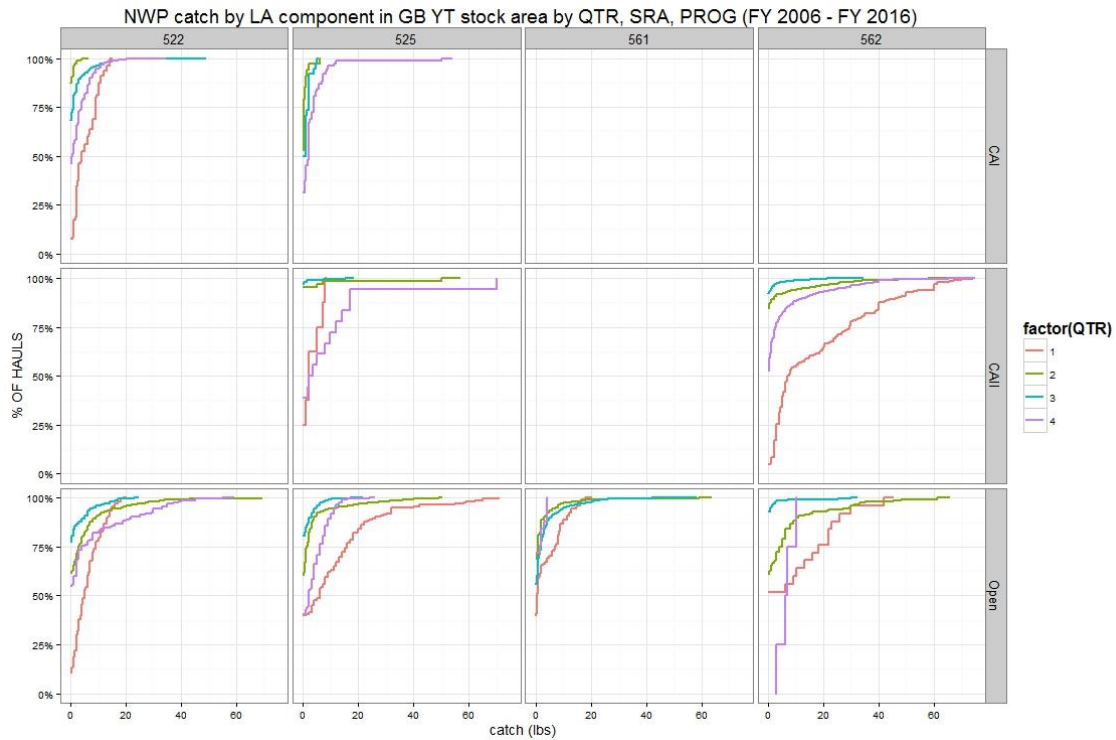




Figure 7 - Quarterly comparison of YT d/K ratios by LA component by SRA and fishing area using haul level data (FY 2011 – FY 2016).

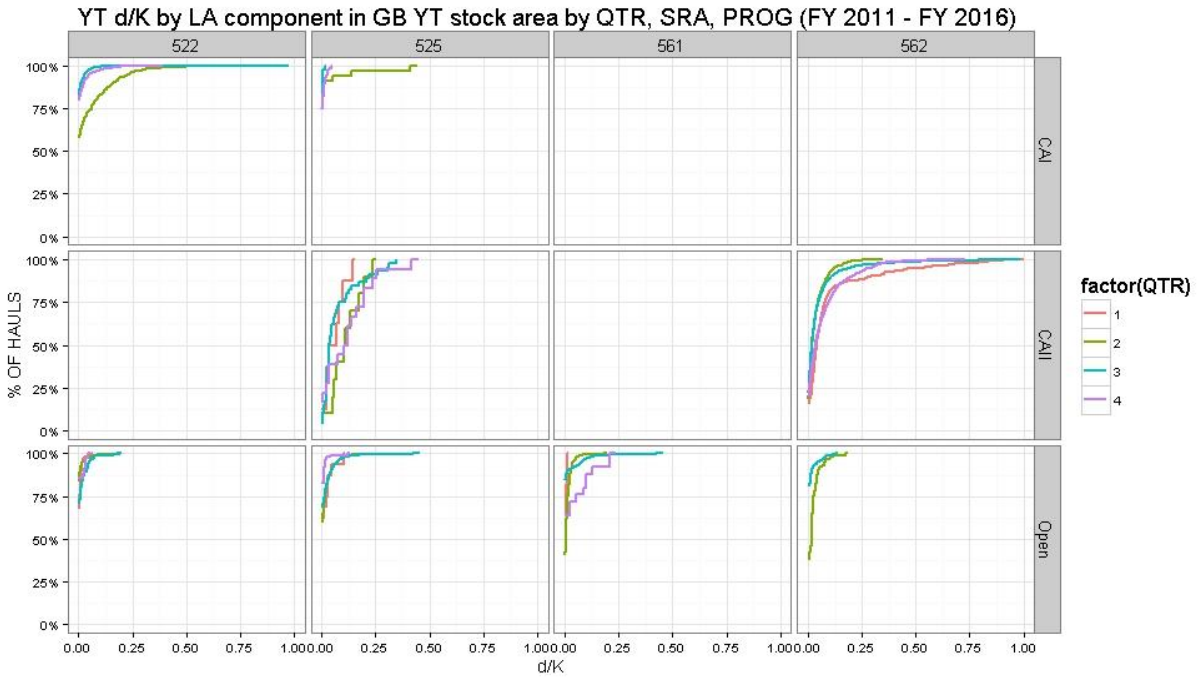
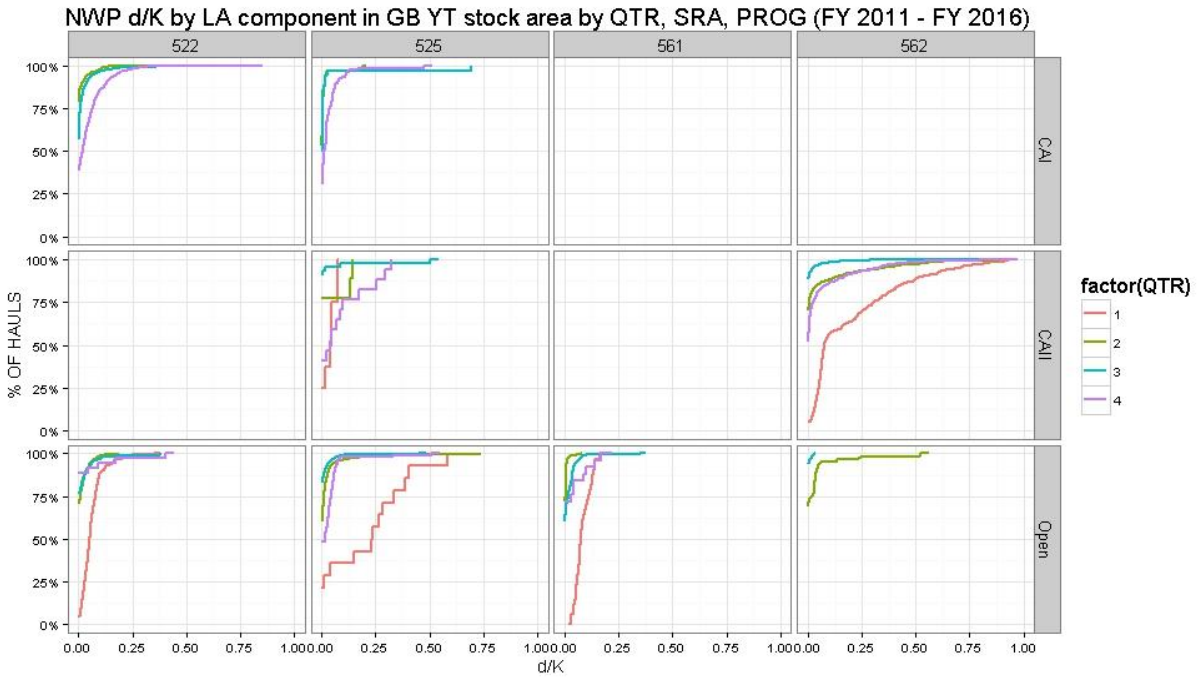
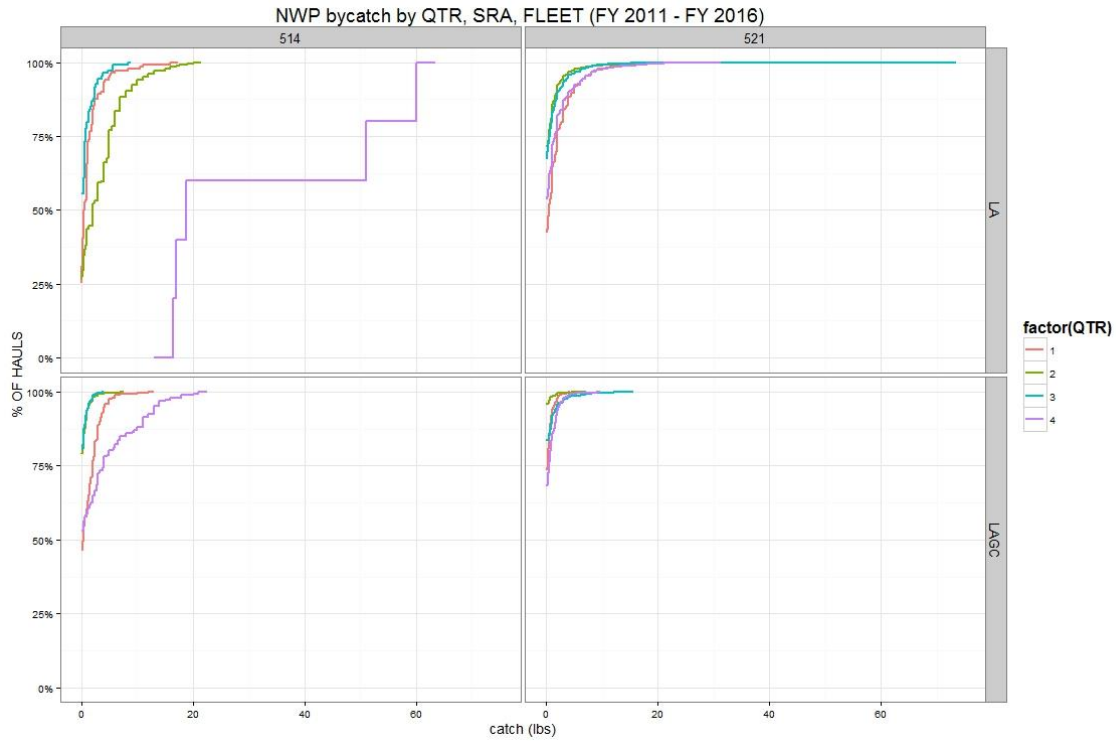


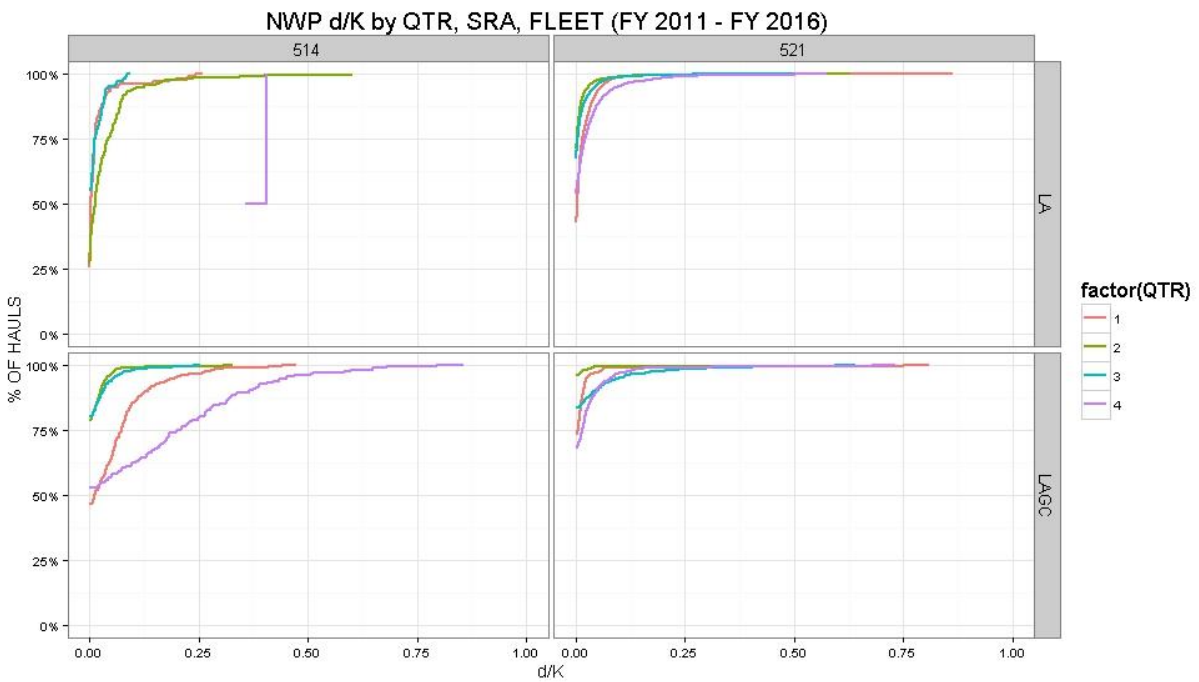
Figure 8 - Quarterly comparison of NWP d/K ratios by LA component by SRA and fishing area using haul level data (FY 2011 – FY 2016).



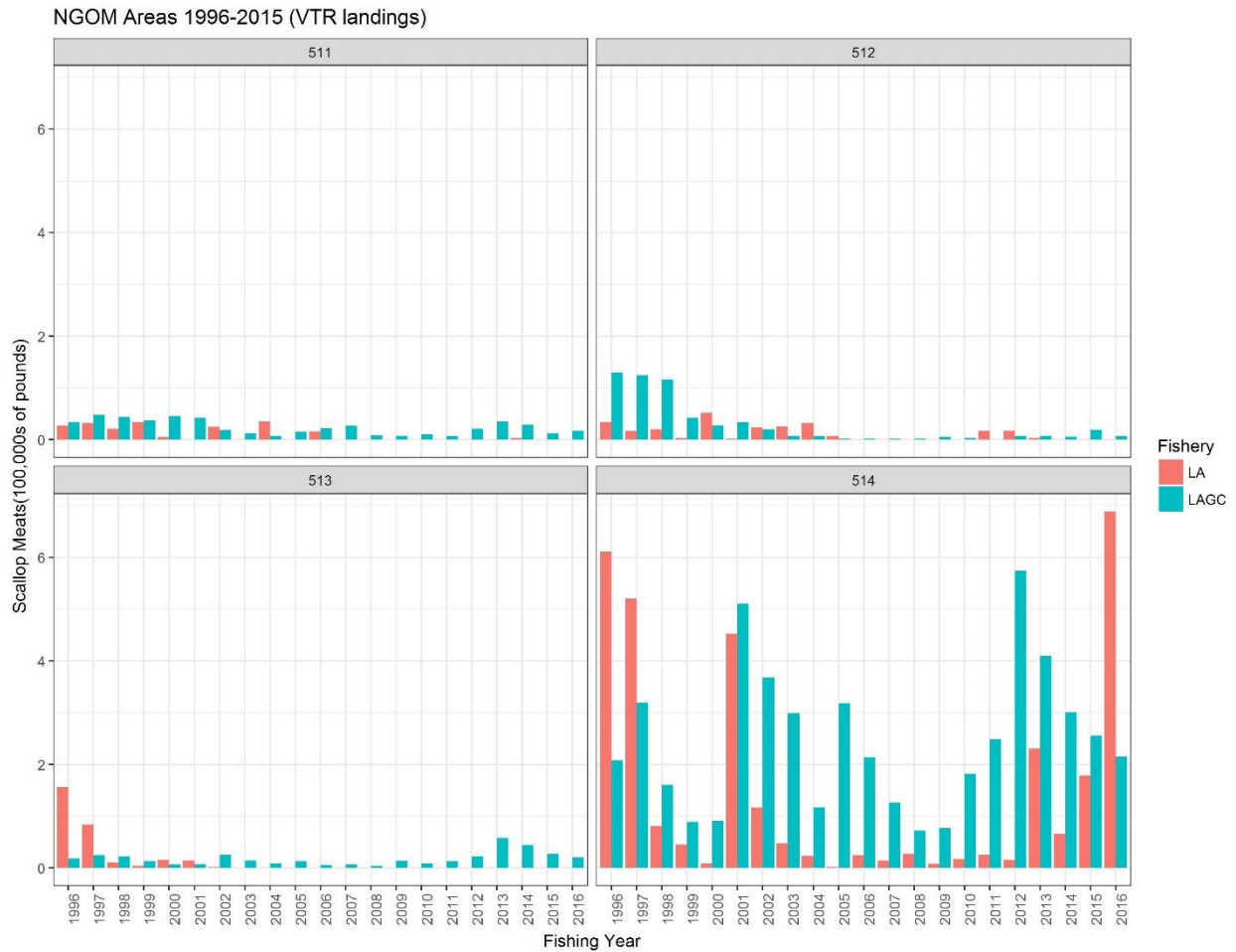
**Figure 9 – Quarterly comparison of bycatch (lbs) of northern windowpane and scallop meats by LA and LAGC in SRA 514 and 521 on haul level observer data (FY 2011 - FY 2016)**



**Figure 10 – Quarterly comparison of d/K ratio of northern windowpane and scallop meats by LA and LAGC in SRA 514 and 521 on haul level observer data (FY 2011 - FY 2016)**



**Figure 11 –Scallop landings from SRA in the Gulf of Maine by LA and LAGC vessels based on VTR landings data.**



### 1.4.1 SQL Script for Observer Data Pull:

select

a.program,

case when a.program = '000' then 'Open' when a.program = '201' then 'NL' when a.program = '202' then 'CAI' when a.program = '203' then 'CAII' when a.program = '204' then 'HC' when a.program = '205' then 'VB' when a.program = '206' then 'ET' when a.program = '207' then 'DMV' when a.program = '208' then 'MAAA' when a.program = '102' then 'TC\_exc' else 'other' end as PROG,

b.fleet\_type,

case when b.fleet\_type = '046' then 'LA' when b.fleet\_type = '047' then 'LAGC' else 'NA' end as FLEET,

case when a.NEGEAR = '132' then 'Dredge' else 'Trawl' end as GEAR,

b.hullnum1,

a.year as yr,

case when extract(month from datehend) < 3 then extract(year from datehend) -1 else extract(year from datehend) end as fishing\_year,

a.month,

v.1

```
b.dateland,
a.tripid,
a.haulnum,
a.link1,
a.link3,
a.qtr,
a.negear,
a.obsrflag,
a.depth,
a.targspec1,
a.targspec2,
a.targspec3,
a.datehbeg, a.timehbeg,
a.datehend, a.timehend,
--(Case when timehend<timehbeg then (timehend+24)-timehbeg
--Else Timehend-timehbeg end) as tow_length,
a.hauldur,
b.DA,
round(a.gis_lathbeg,6) gis_lathbeg,
round(a.gis_lonhbeg * -1,6) gis_lonbeg,
round(a.gis_lathend,6) gis_lathend,
round(a.gis_lonhend* -1,6) gis_lonend,
a.soakdur,
a.nemarea,
a.area,
case when a.area <= '521' then 'GOM' when area in ('522','525','542','543','561','562') then 'GB'
when area < '700' then 'SNE' else 'NA' end as YT_BSA,
case when a.area in ('465','464','511','512','513','514','515','521','522','525','542','543','561','562') then 'GB'
else 'SNE' end as WP_BSA,
--WATCH nespp4 - often change between species depending on WP or YT - wp = 1250 yt = 1230
sum(case when a.nespp4 = '1230' and a.obsrflag = 1 and a.catdisp = 0 then a.hailwt else null end) as yt_d,
sum(case when a.nespp4 = '1230' and a.obsrflag = 1 and a.catdisp = 1 then a.hailwt else null end) as yt_k,
((sum(case when a.nespp4 = '1230' and a.obsrflag = 1 and a.catdisp = 0 then a.hailwt else 0 end)) + (sum(case when
a.nespp4 = '1230' and a.obsrflag = 1 and a.catdisp = 1 then a.hailwt else 0 end))) as sum_yt_dk,

sum(case when a.nespp4 = '1250' and a.obsrflag = 1 and a.catdisp = 0 then a.hailwt else null end) as wp_d,
sum(case when a.nespp4 = '1250' and a.obsrflag = 1 and a.catdisp = 1 then a.hailwt else null end) as wp_k,
```

v.1

```
((sum(case when a.nespp4 = '1250' and a.obsrflag = 1 and a.catdisp = 0 then a.hailwt else 0 end)) + (sum(case when a.nespp4 = '1250' and a.obsrflag = 1 and a.catdisp = 1 then a.hailwt else 0 end))) as sum_wp_dk,
```

```
sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 1 then a.hailwt else null end) as scallop_meat_dr,
```

```
sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 2 then a.hailwt else null end) as scallop_meat_rd,
```

```
((sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 1 then a.hailwt else 0 end)) + (sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 2 then a.hailwt*.120048 else 0 end))) as sum_meats,
```

```
((sum(case when a.nespp4 = '1230' and a.obsrflag = 1 and a.catdisp = 0 then a.hailwt else 0 end)) + (sum(case when a.nespp4 = '1230' and a.obsrflag = 1 and a.catdisp = 1 then a.hailwt else 0 end))) / ((sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 1 then a.hailwt else 0 end)) + (sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 2 then a.hailwt*.120048 else 0.1 end))) as ytdk,
```

```
((sum(case when a.nespp4 = '1250' and a.obsrflag = 1 and a.catdisp = 0 then a.hailwt else 0 end)) + (sum(case when a.nespp4 = '1250' and a.obsrflag = 1 and a.catdisp = 1 then a.hailwt else 0 end))) / ((sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 1 then a.hailwt else 0 end)) + (sum(case when a.nespp4 = '8009' and a.obsrflag = 1 and a.catdisp = 1 and drflag = 2 then a.hailwt*.120048 else 0.1 end))) as wpdk
```

```
from obhauspp@nova a, obtrp@nova b
```

```
where a.link1 = b.link1
```

```
and targspec1 = '8009'
```

```
and fleet_type in ('047', '046')
```

```
--and area in ('514', '521')
```

```
and b.dateland between '01-MAR-2011' and sysdate and obsrflag = 1
```

```
--and a.area in (522,561,562,525)
```

```
group by
```

```
a.program,
```

```
b.fleet_type,
```

```
b.hullnum1,
```

```
a.year,
```

```
a.month,
```

```
b.dateland,
```

```
a.tripid,
```

```
a.haulnum,
```

```
a.link1,
```

```
a.link3,
```

```
a.qtr,
```

v.1

a.negear,  
a.obsrflag,  
a.depth,  
a.targspec1,  
a.targspec2,  
a.targspec3,  
a.datehbeg, a.timehbeg,  
a.datehend, a.timehend,  
a.hauldur,  
b.DA,  
a.gis\_lathbeg,  
a.gis\_lonhbeg,  
a.gis\_lathend,  
a.gis\_lonhend,  
a.soakdur,  
a.nemarea,  
a.area

#### 1.4.2 R code from Ben G.

```
> ggplot(GB3, aes(x= SUM_WP_DK, colour = factor(QTR))) +  
+ stat_ecdf(size = 1) +  
+ theme_bw()+  
+ facet_grid(FLEET~AREA)+  
+ xlab('catch (lbs)')+  
+ ylab('% OF HAULS')+  
+ scale_y_continuous(labels = scales::percent)+  
+ xlim(0,75)+  
+ ggtitle('NWP bycatch by QTR, SRA, FLEET (FY 2011 - FY 2016)')+  
+ theme(legend.title = element_text(colour="black", size = 16, face="bold"))+  
+ theme(strip.text = element_text(size = 13))  
+ , axis.title.x = element_text(size = 14)  
+ , axis.title.y = element_text(size = 14)  
+ ,title = element_text(size = 16))
```