



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: September 9, 2016
TO: Groundfish PDT
FROM: Scallop PDT
SUBJECT: **Scallop Fishery Catch of Northern Windowpane Flounder**

In response to the Groundfish Plan Development Team's suggestion that the criteria for the "dual fixed percentage" alternative for setting a northern windowpane sub-ACL be developed with input from the Scallop Plan Development Team (PDT), the Scallop PDT met by conference call on Sept. 7 and Sept. 9, 2016 to review scallop fishery catch estimates of northern windowpane flounder (NWP), and scallop landings attributed to fishing in the NWP stock boundary.

This memo is intended to inform the Groundfish PDT's and Council's consideration of what characteristics would constitute a "low" or "high" windowpane flounder bycatch year compared to historic levels, and the suggestion that the dual fixed percentage approach should be formulaic. The Scallop PDT discussed potential approaches for estimating windowpane bycatch that may be able to help characterize "low" or "high" bycatch years. This task is inherently difficult given the complexity of spatial management in the scallop FMP. The analyses and discussion in this memo are preliminary, and the Scallop PDT plans to follow-up on this memo with further analyses described below, if necessary.

Key points from scallop PDT discussion:

1. The spatial management component of the scallop FMP is dynamic, and may change annually. In addition to the opening and closing of what can be considered traditional access areas on Georges Bank (Closed Area I and Closed Area II), spatial management is also about where open area effort may go, and human behavior can be difficult to predict.
2. The scallop fishery's catch of northern windowpane is broadly distributed across the fishery within the windowpane stock area (Figure 8). The northern windowpane stock area currently includes open areas and two (CA I and CA II) access areas. Figure 8 suggests that the scallop fishery encounters northern windowpane everywhere the fishery operates in the stock area. Figure 4 indicates that scallop landings (LA only) are broadly distributed within the Northern windowpane stock area, with significant landings coming from both open areas and access areas.
3. The NEFSC fall survey encounters windowpane flounder in the northern portion of the CA II (north of the CA II S AA see Figure 7). Modifications to the scallop fishery's access in this area may alter our perception of what a "high" and "low" bycatch year might be, relative to historic levels.

4. Estimates of the scallop fishery's catch of windowpane have varied greatly over time (Figure 6). After peaking in 1997 (over 250 mt), catch estimates fell to below 50 mt for several years. Estimated catch of northern windowpane has steadily increased since 2010. Recent increases in estimated catch can be driven by a host of factors, which includes but is not limited to: increases in abundance of the windowpane stock, the scallop fishery's observed catch of windowpane, and overall magnitude of landings attributed to the northern windowpane stock area.
5. Based on projections done in scallop Framework 27, the scallop fishery's catch of windowpane flounder was projected to be around 50% of the overall windowpane ACL in FY2017 and FY2018.
6. The Georges Bank Yellowtail flounder sub-ACL is determined using a fixed percentage that was based on the highest year of scallop catch in the time series (16%).
7. Final year end catch estimates of windowpane catch by the scallop fishery are not yet available for FY 2015. The windowpane catch estimates will be useful for comparison purposes with other years because CA II AA was closed in FY 2015.
8. The scallop fishery encounters windowpane more often in the fall and winter than during the summer (Figure 1 and Figure 2).
9. Windowpane assessment uses an index-based model that looks at relative biomass as measured by the survey. This is not a robust method when compared with other stock assessment methods such as age-based models. Given the importance of windowpane flounder to multiple fisheries, applying ACL management (and sub-ACL management) is very difficult given the limitations of the assessment.
10. Northern windowpane catch estimates by the scallop fishery are projected annually as part of SAMS model runs. Given the spatial component of the fishery, the PDT feels that a "high" or "low" bycatch estimate should utilize these projections.

Windowpane Catch Estimation:

The scallop PDT notes that northern windowpane is a zero-possession, discard only stock. As such, estimated catch for each fishing year is the sum of 1) catch of windowpane on observed trips, and 2) discard to kept ratio (d/k) multiplied by scallop landings on unobserved trips within the stock area. Because the d/k ratio is applied to all scallop landings within the stock area, irrespective of their actual catch of windowpane, the PDT reviewed the spatial and temporal distribution of windowpane catches (presence and absence, d/k), as well as the overall landings within the windowpane stock area. Figure 8 suggests the scallop fishery's catch of windowpane is broadly distributed across Georges Bank and the northern portion of the Great South Channel.

Scallop Fishery within the Northern Windowpane Stock Boundary:

- Access Areas: Closed Area I and Closed Area II South
- Open Areas of significance: Great South Channel (SRA 521), southern flank of Georges Bank, northern flank of Georges Bank, Gulf of Maine.

The scallop PDT estimates projected fishery catch of northern windowpane during the process of setting scallop fishery specifications. These estimates are usually available by October in time for final action in November. The SAMS model (see Figure 9) accounts for biomass in discrete areas, and estimates of scallop fishing mortality (F rates) and windowpane d/k ratios can be adjusted on an annual basis for each SAMS area. In this way, the SAMS model is able to estimate potential fishing effort in both access areas and open areas. These open area estimates

are of particular importance to the bycatch estimates because DAS and IFQ fishing can be done in open areas throughout the range of the fishery.

Potential Approaches:

The scallop PDT notes that the rationale for the dual percentage approach seems to come from the idea that scallop fishery bycatch of windowpane may be higher in years when the access areas are open. The PDT feels that a “High” or “Low” bycatch year cannot be determined based on the opening of access areas alone, and that additional work is needed to determine scallop catch of windowpane throughout the range of the stock boundary, including open areas. The presence/absence in observed tows suggest that there may be higher levels of windowpane catch in the open areas. The PDT notes that comparing windowpane catch estimates between FY2014 and FY2015 may shed light on whether or not the CA II access area opening should be a consideration in the “high/low” approach.

A formulaic approach to determine a high or low allocation requires an estimate windowpane (as a ratio or percentage) catch by spatial areas. This can be done using SAMS model estimates, which project windowpane catch in discrete areas, and captures which areas are open to fishing in a given year. The PDT also discussed reviewing average annual catch (as a percentage of the total windowpane allocation) over a specified time period (ex: 2011-2015) in open areas to develop a historic baseline for open area fishing. The rationale would be that average catch over a period of 5-6 years from open areas may provide a reasonable estimate of what the fishery is likely catch while operating in the DAS and IFQ fisheries. Looking at averaged percentages alone may not be sufficient to accurately describe windowpane catch in the scallop fishery,

Analyses and information to consider:

- By year (Table 3, Table 4, Table 5)
 - o Percent of windowpane catch in the scallop fishery compared to total windowpane allocation
 - o Percent of windowpane catch in the scallop fishery compared to groundfish fishery
- By area (to try to determine where “high” and “low” windowpane catch occurs).
 - o SAMS model runs.
 - o Windowpane catch by SRA compared to overall scallop windowpane catch.
 - o Percent of windowpane catch by access area compared to overall scallop windowpane catch (Table 2)
- D:K ratios (trip level)
 - o Discard to kept ratios can be examined by year and area. The SAMS model uses d/K (windowpane discards to scallops landings x projected scallop landings) to generate a catch estimate. Seasonality is not accounted for in this model. Predicting fishery behavior is difficult, but SAMS windowpane estimates give a first approximation of where open area effort may be.
 - o Northern windowpane SAMS projections were done in recent years. The scallop PDT can look at the projections from past years, compare to the actual estimate. This approach can be used to understand how spatial management may be impacting estimated catch (years when access areas are closed).

Figure 1 - Presence/Absence of windowpane flounder in observed scallop hauls by statistical reporting area from FY2011 - present. Note that SRA 515 was excluded due to a low number of observed hauls.

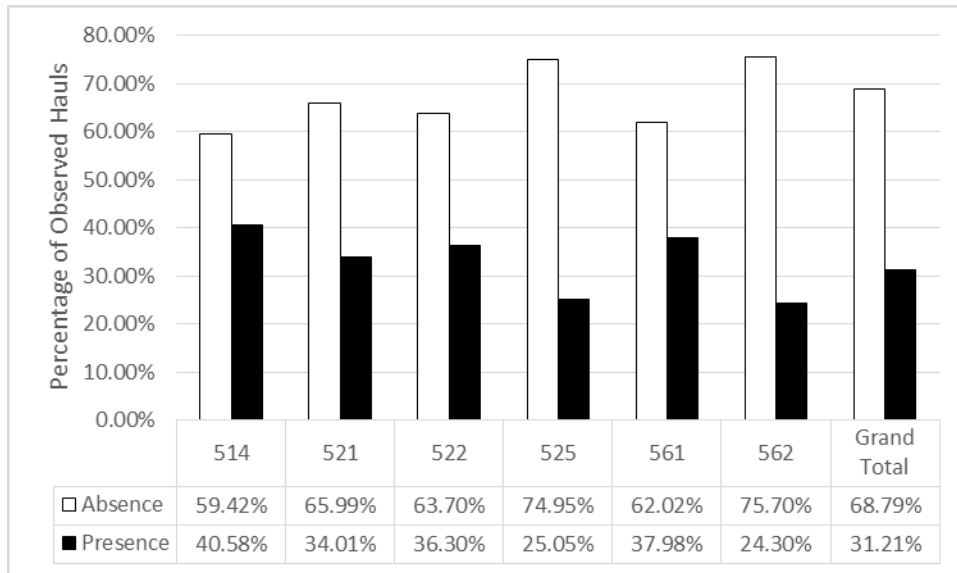


Table 1 – Number of observed hauls reporting catch of windowpane flounder by SRA. FY2011 – present.

SRA	Absence	Presence	Grand Total
514	1246	851	2097
521	11483	5918	17401
522	4167	2375	6542
525	8480	2834	11314
561	1963	1202	3165
562	5874	1886	7760
Grand Total	33214	15066	48280

Figure 2 - Presence/Absence of windowpane flounder in observed scallop hauls in Closed Area II from FY2007 – present, by month. There were no observed hauls in February.

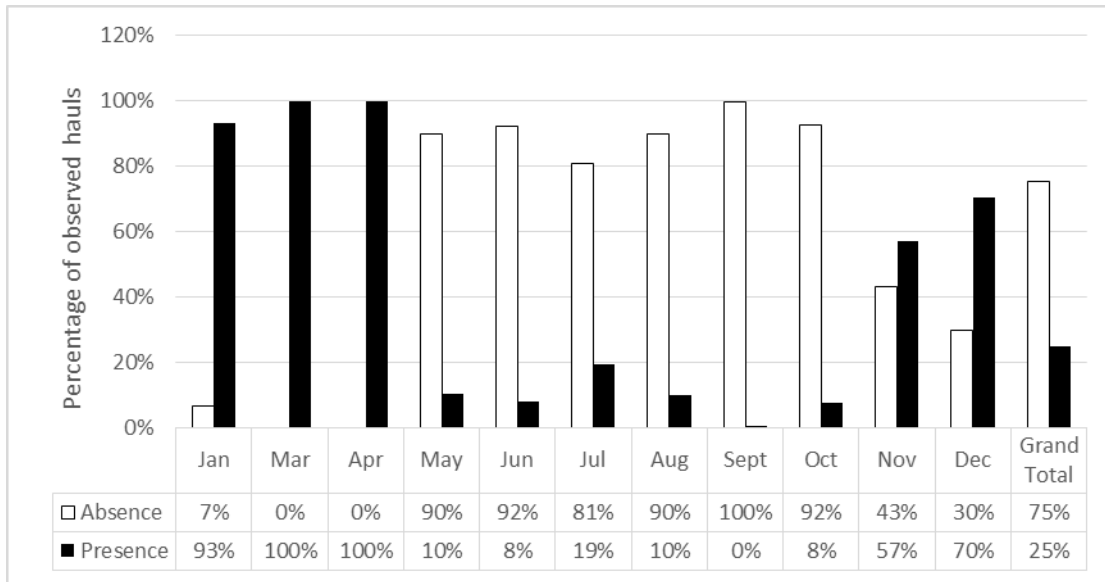


Figure 3 - Presence/Absence of windowpane flounder in observed scallop hauls in Closed Area I from FY2007 – present, by month. There were no observed hauls in February, March, or April.

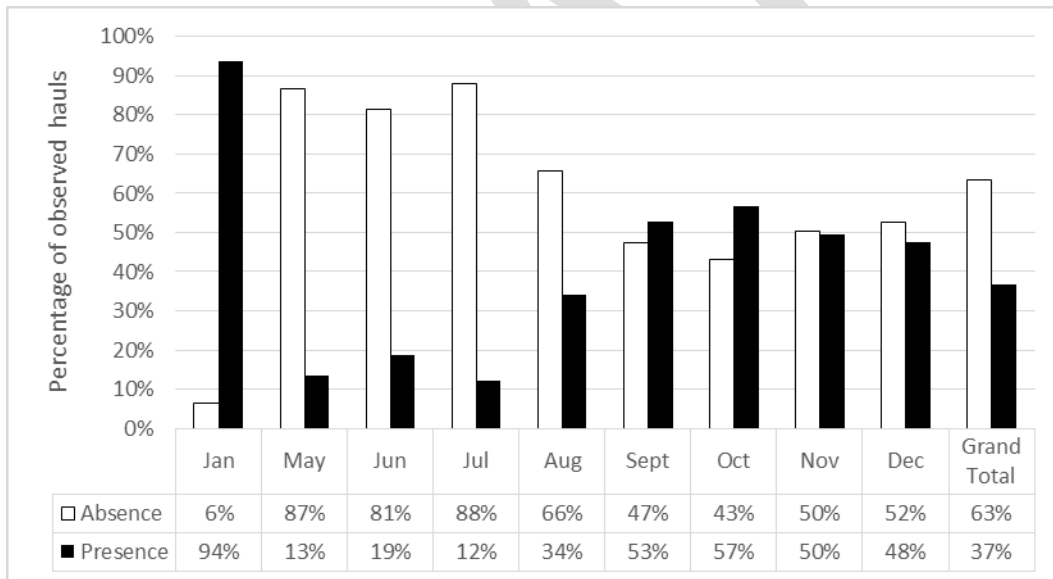


Table 2 - Limited Access scallop fishery allocations by FY and recent schedule of CA I and CAII access, including estimated scallop fishery catch of northern windowpane flounder.

FY	Action	LA DAS (FT)	AA trips	CA I AA	CA II AA	Est. Scallop Catch	Notes
2011	FW22	32	4 (2 MA)	1.5 trips (all 313 vessels get 1, 156 get add.trp)	0.5 trips (157 vessels; 18K lbs/trip)	33 mt	
2012	FW22	34	4	1 trip after EA in May 2012	1 trip (313 vessels; 18K lbs/trip)	75.7 mt	
2013	FW24	33	2	118 Trips (unused trips carryover)	182 trips (13K lbs/trip)	40.7 mt	Seasonal closure of CAII Aug 15 – Nov 15;
2014	FW25	31	2	Closed	197 trips (12K lbs/trip)	99.7 mt	Seasonal closure of CAII Aug 15 – Nov 15;
2015	FW26	30.86	51K lbs to MAAA	Closed	Closed		Windowpane Catch estimate in FW26
2016	FW27	34.55	3 (51K lbs to MAAA)	Closed	Closed		'CAII Extension' closure of open areas to protect small scallops (portion of SRA 525 & 562)

Table 3 - Final year end catch data (mt) for 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

Source: NMFS Greater Atlantic Regional Office, Final Year End Catch Reports for 2010, 2011, 2012, 2013, 2014.

<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 4 - Recent northern windowpane flounder catch estimates by fishery (mt). *FY2015 data is preliminary.

<i>Fishing Year</i>	<i>Scallop</i>	<i>Squid/Whiting</i>	<i>Lobster/Crab</i>	<i>Groundfish Sectors</i>	<i>Total ACL (mt)</i>
2012	75.7	0.9	0	129.5	163
2013	40.7	0.6	0	237.3	144
2014	99.7	1.0	7.4	157.4	144
2015*	<i>Final data not available</i>			74.5	144

Table 5 – Northern windowpane flounder estimated catches by fishery as a percentage of the total ACL (not sub-ACL). *FY2015 data is preliminary.

<i>Fishing Year</i>	<i>Estimated catches as a percentage of the total ACL</i>				
	<i>Total ACL (mt)</i>	<i>Scallop</i>	<i>Squid/Whiting</i>	<i>Lobster/Crab</i>	<i>Groundfish Sectors</i>
2012	163	46.44%	0.55%	0.00%	79.45%
2013	144	28.26%	0.42%	0.00%	164.79%
2014	144	69.24%	0.69%	5.14%	109.31%
2015*	144	<i>Final data not available</i>			51.74%

Figure 4 - Limited Access landings from northern windowpane stock area by reporting area and fishing year.

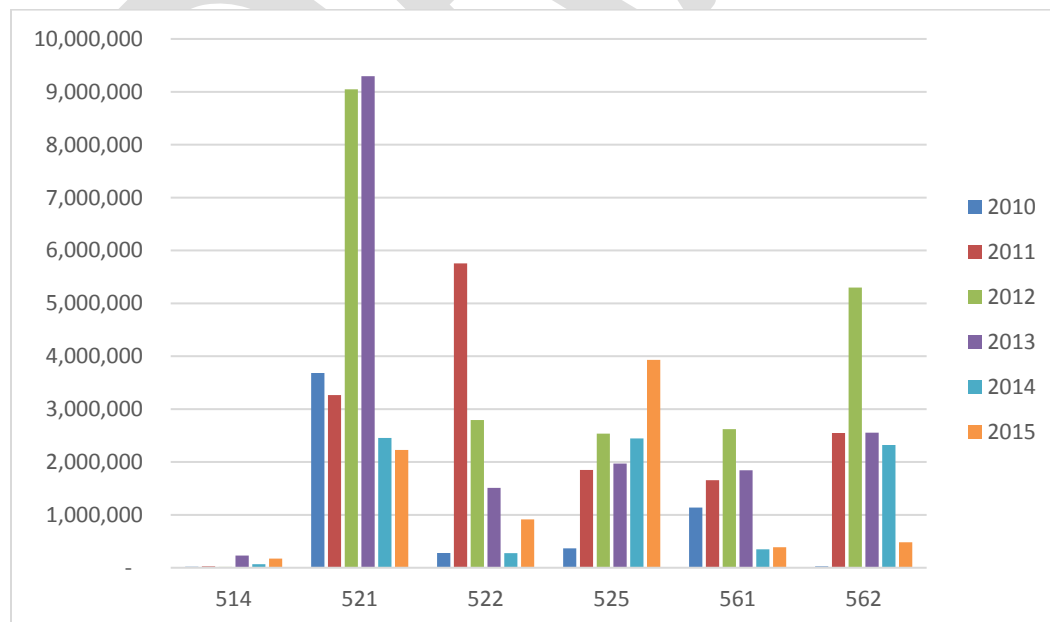


Figure 5 - Number of unique scallop permits with VTR landings by statistical reporting area from FY2010 - FY2015.

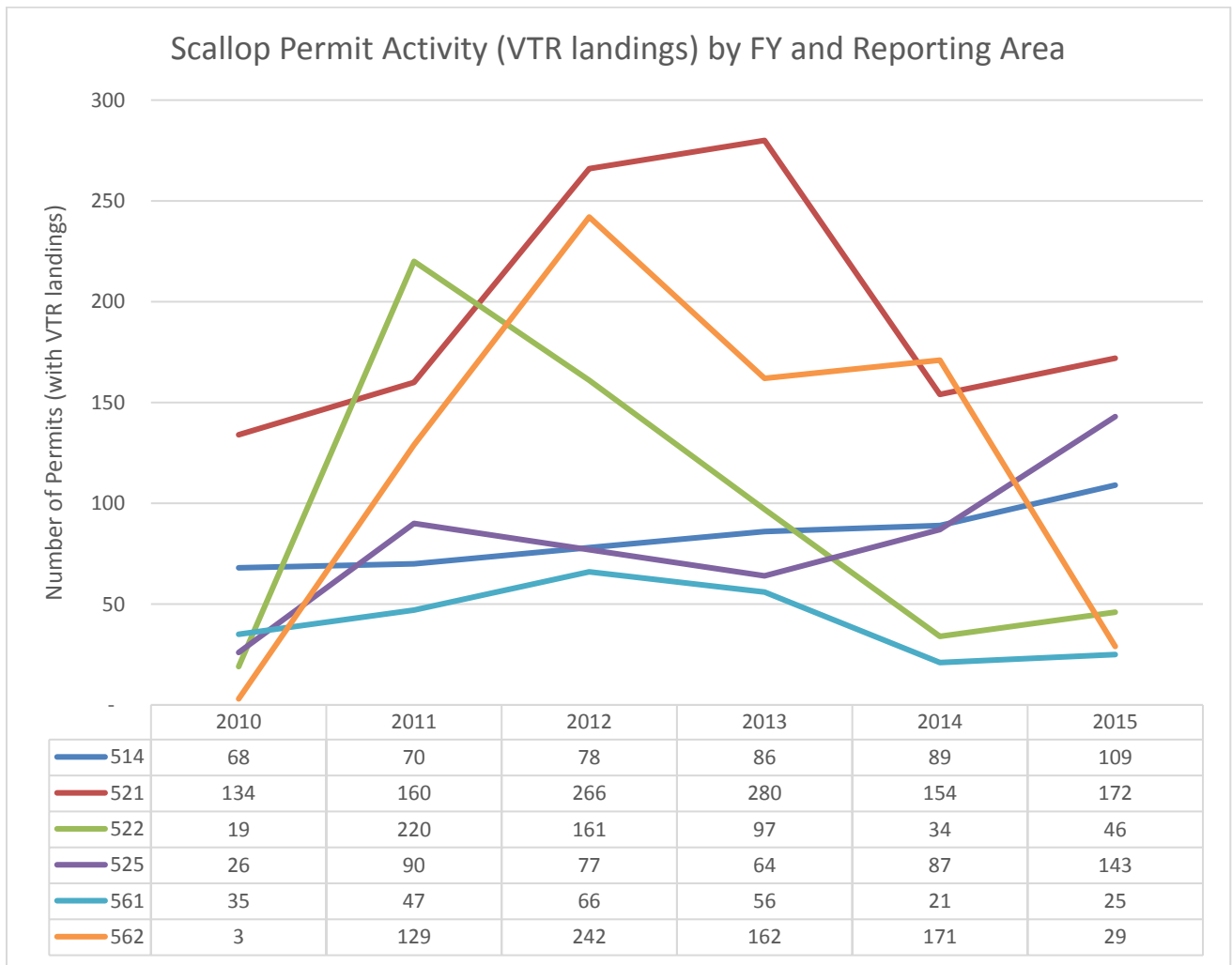


Figure 6 - Scallop dredge catch (limited access permits only) of northern and southern windowpane flounder, calendar years 1992-2014. Source: NEFSC, 2015.

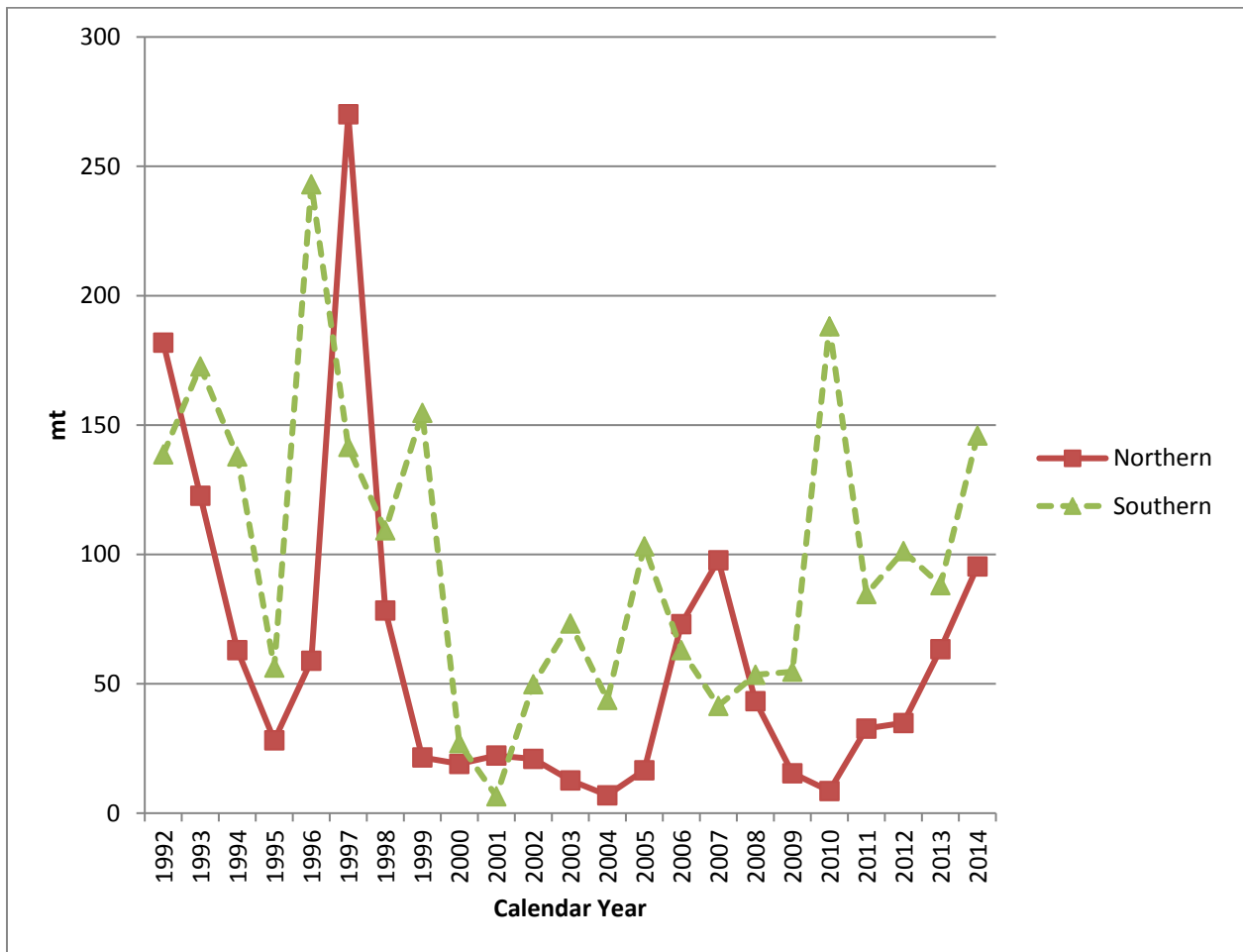
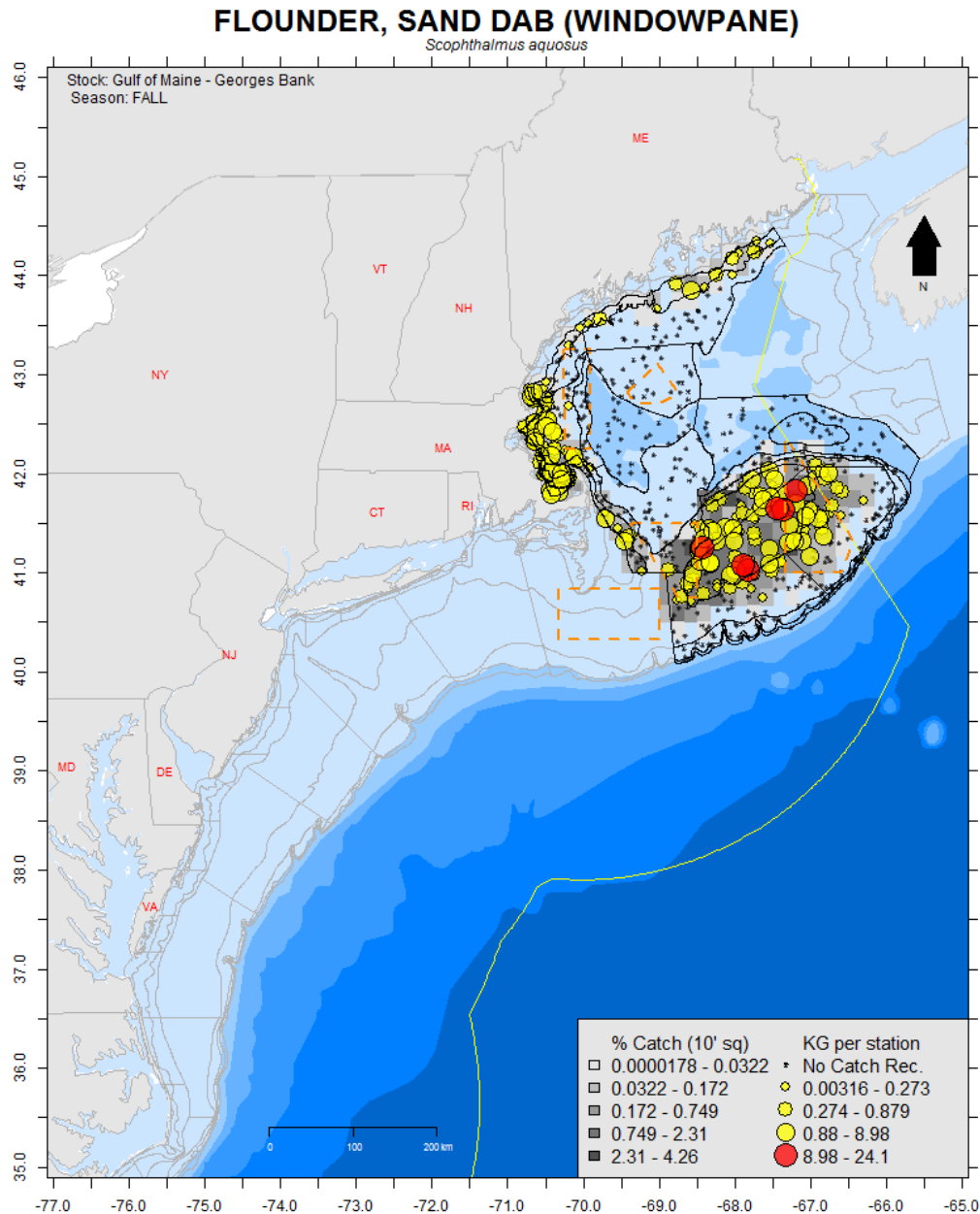


Figure 7 - Northern Windowpane fall survey catch data plot from 2015 operational assessment. See description of figure below.



From the NEFSC Stock Assessment Supporting Information (SASINF) website: “This map represents survey catches for FLOUNDER, SAND DAB (WINDOWPANE), *Scophthalmus aquosus*, Gulf of Maine - Georges Bank stock. The shaded cells represent the percentage of catch per ten minute square for the fall. NMFS NEFSC BOTTOM TRAWL SURVEY time series, from 1963 - 2014. The points represent catch weights for the previous 5 years (2010 - 2014) of the fall NMFS NEFSC BOTTOM TRAWL SURVEY time series. The red points show the locations of the 6 largest tows in the set. All weights have been calibrated according to the appropriate survey calibration factors for the species and stock.” (NEFSC, 2015 http://www.nefsc.noaa.gov/saw/sasi/sasi_report.php)

Figure 8 – Presence (I) and absence (O) of northern windowpane flounder in observed scallop fishery (LA & LAGC) hauls, FY2011 - present.

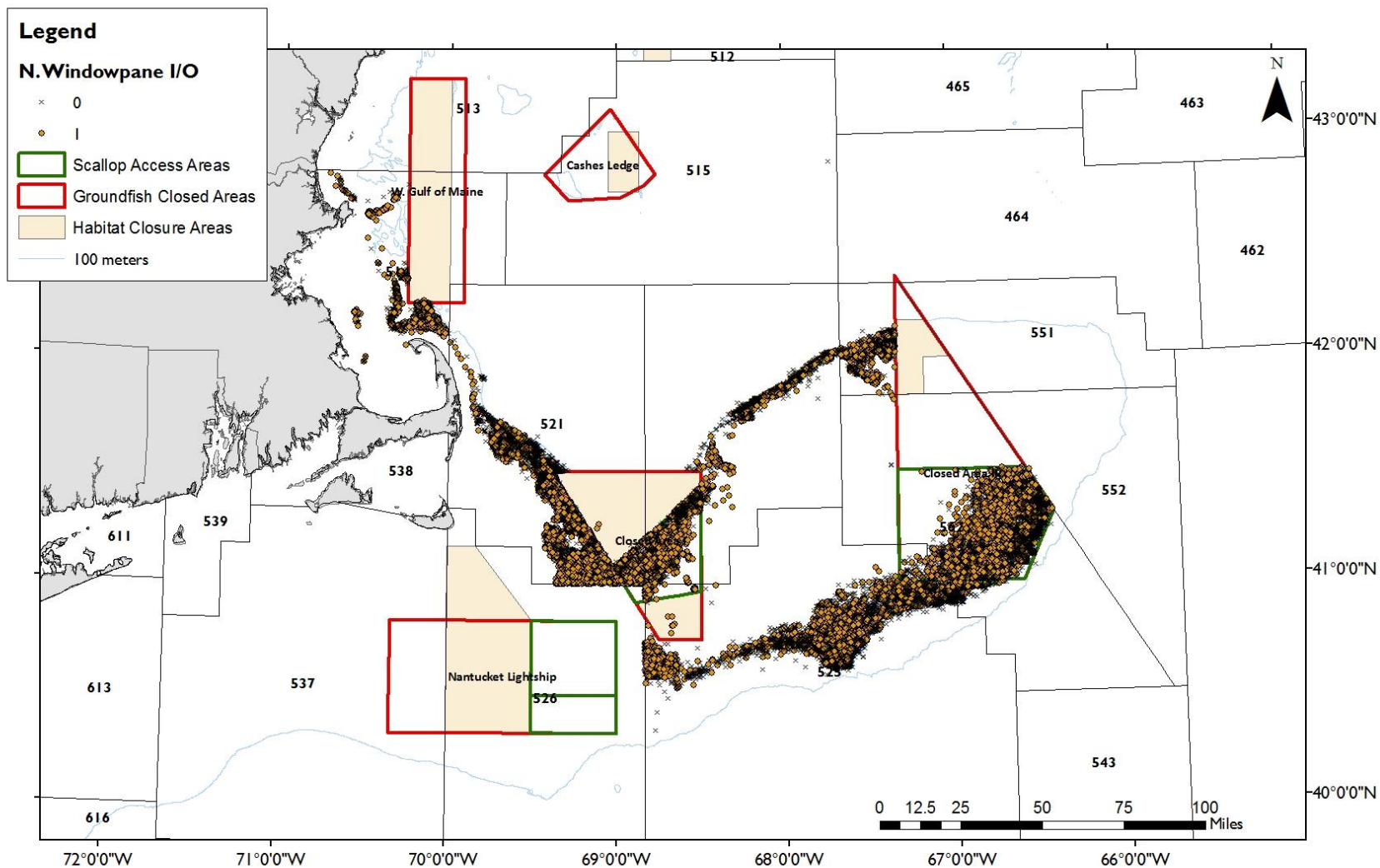


Figure 9 - 2016 Georges Bank SAMS model areas, including groundfish closed areas.

