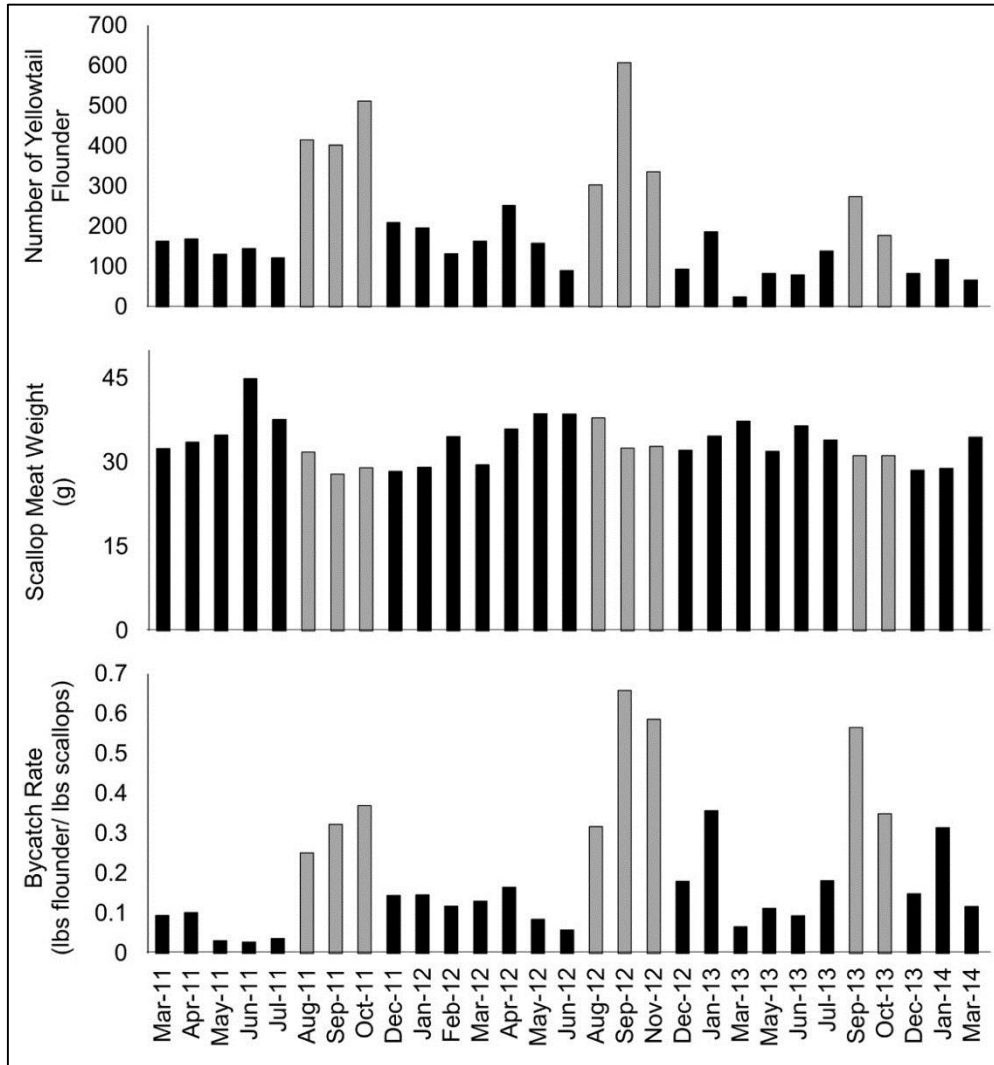


# Reduction of flounder bycatch in the sea scallop fishery on Georges Bank: the yellowtail versus windowpane problem

Liese Siemann, Luisa Garcia, Carl Huntsberger, Farrell Davis, Ricky Alexander, Chris Parkins, and Ronald Smolowitz



# Seasonal closures to reduce yellowtail flounder bycatch in Closed Area II (CAII) on eastern Georges Bank



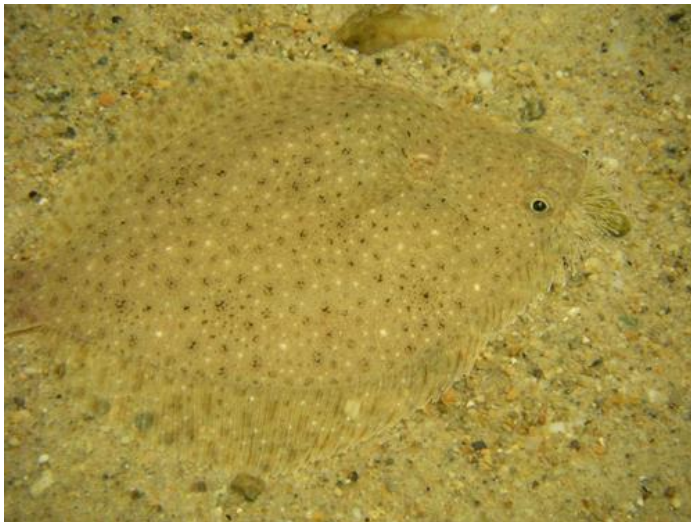
- Seasonal closures were initially from Feb 1 – June 15
- Yellowtail flounder catch in the scallop dredge peaked in August through November
- Scallop meat weights were low in August through November
- Closing CAII to scallop fishing in August through November would lower the yellowtail flounder bycatch rate and open CAII to the scallop fishery when meat weights were higher
- Adjustment to the scallop management plan (2013 – FW 24)

**WIN-WIN?**

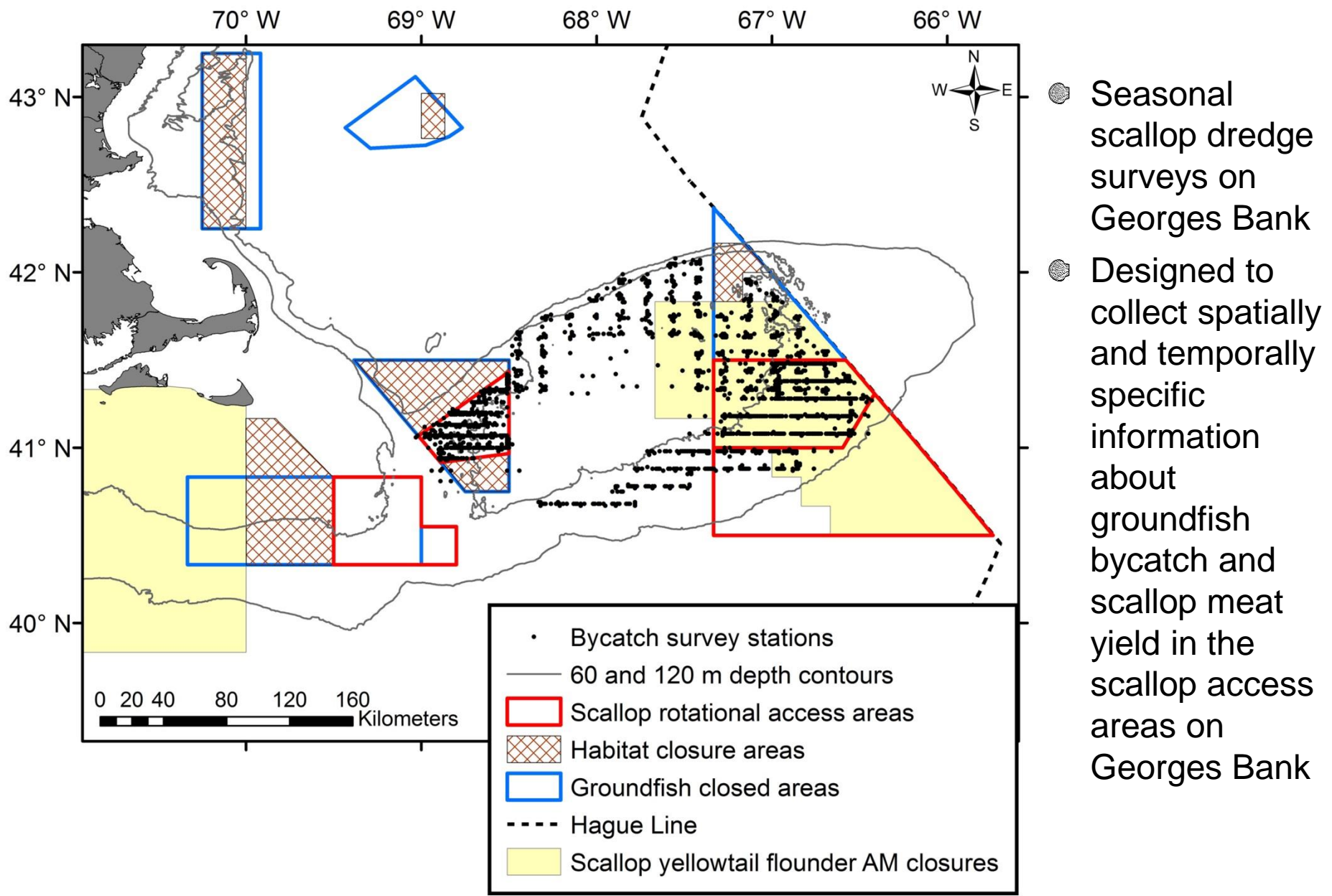
Smolowitz RJ, Siemann LA, Huntsberger C, and Boelke D. 2016. Application of seasonal closures to reduce flatfish bycatch in the USA Atlantic sea scallop fishery. *Journal of Shellfish Research* 35

# The new windowpane flounder problem

- The proportion of northern windowpane flounder catch in the scallop fishery increased to 46% in 2014 from 18-19% during 2011-2013
- Did changing CAll seasonal access months for the scallop fleet cause this increase?

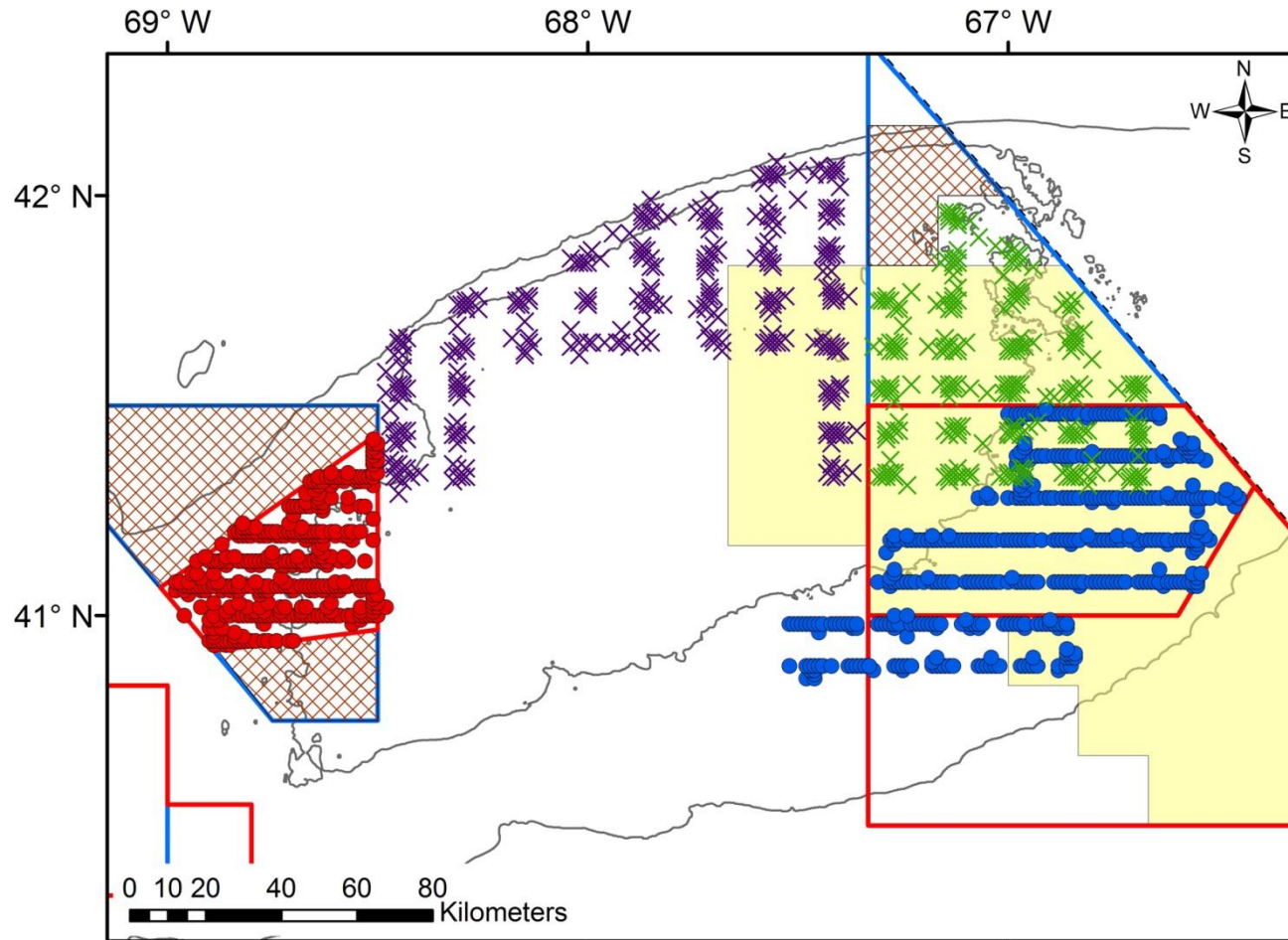


# CFF seasonal bycatch study (May 2011 – present)

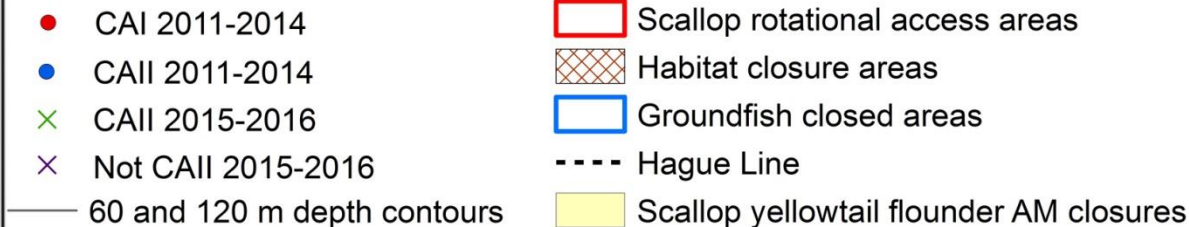


- Seasonal scallop dredge surveys on Georges Bank
- Designed to collect spatially and temporally specific information about groundfish bycatch and scallop meat yield in the scallop access areas on Georges Bank

# Bycatch survey stations

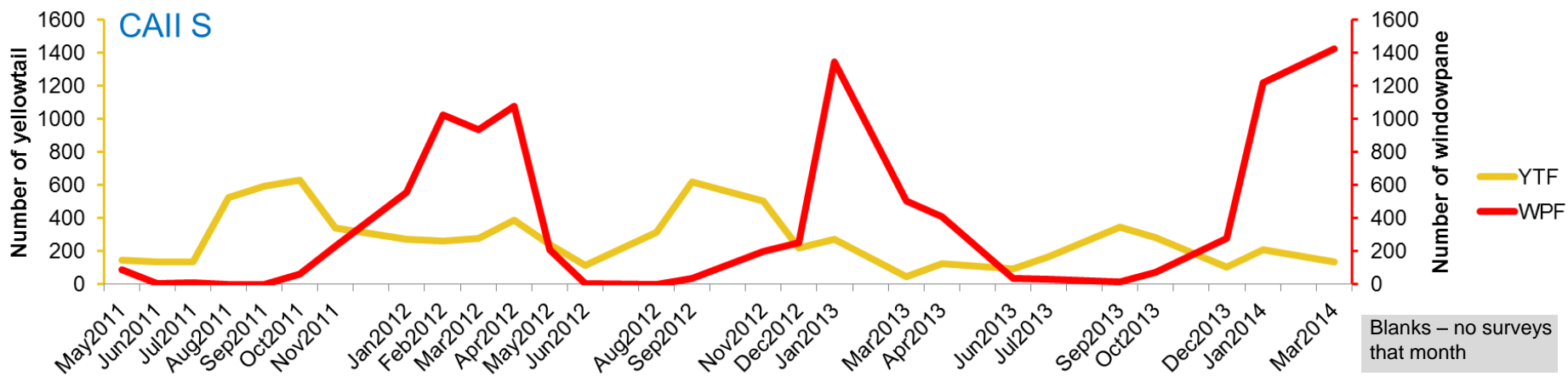
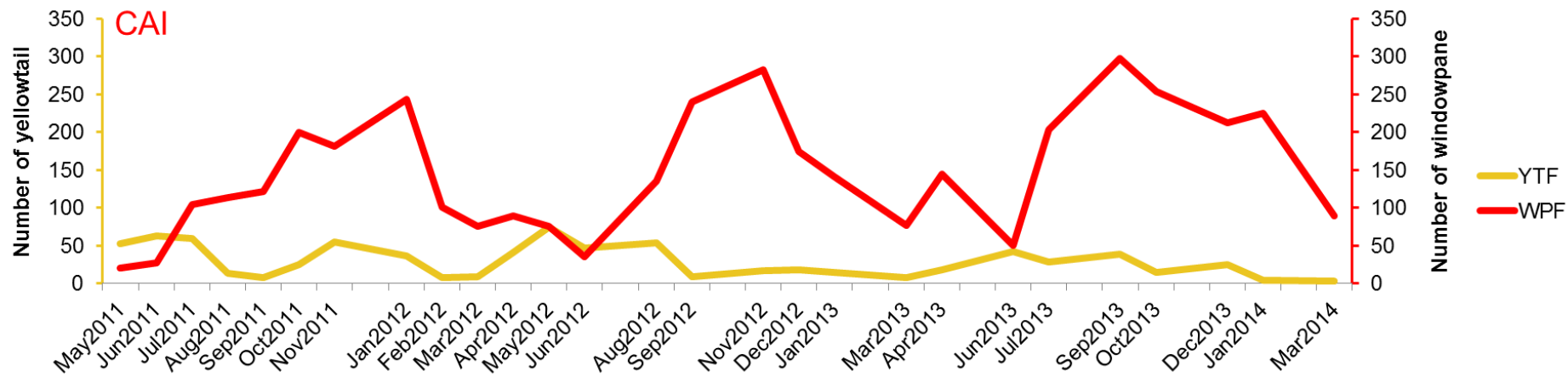


## Bycatch survey stations

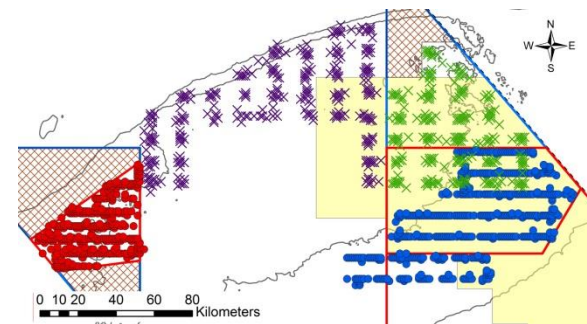


- The survey uses a fixed grid design
- From May 2011 – March 2014, the survey was conducted every four to six weeks in the scallop access areas of CAI and CAII
- The survey was moved onto northern Georges Bank beginning in August 2015
- Since 2011, one of the dredges has been a turtle-deflector dredge (TDD) with a 7-row apron

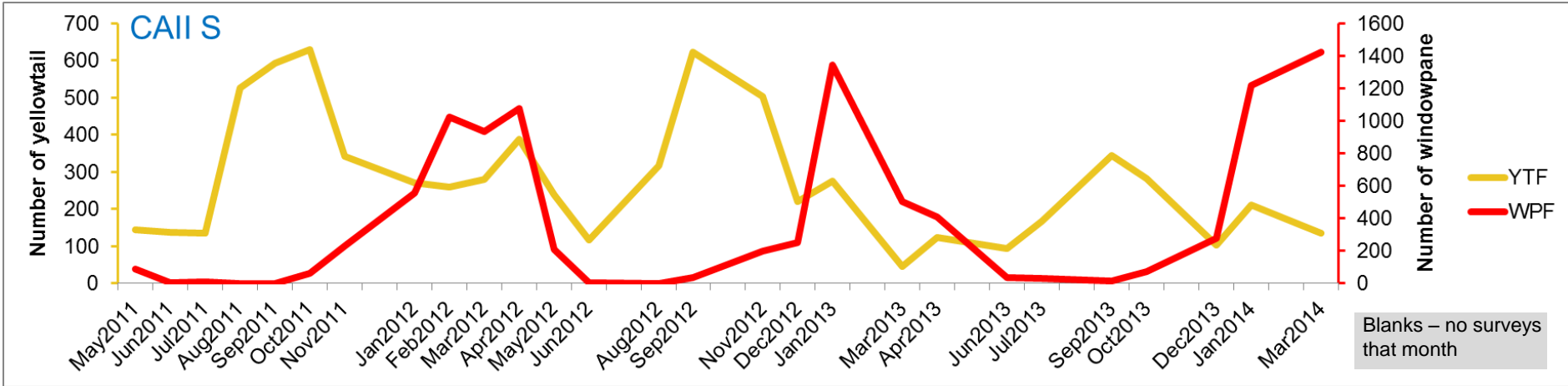
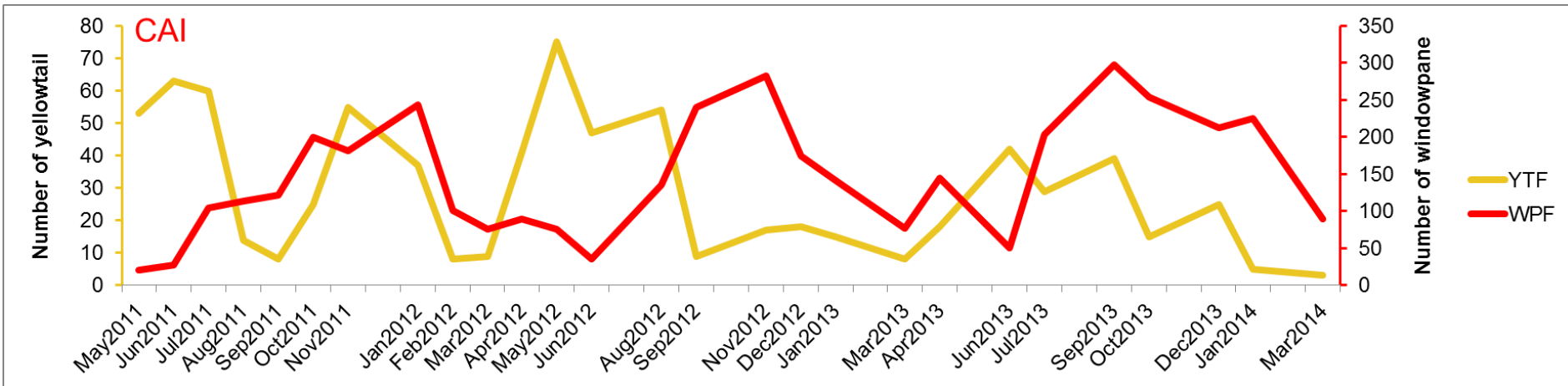
# Southern Georges Bank 2011 - 2014



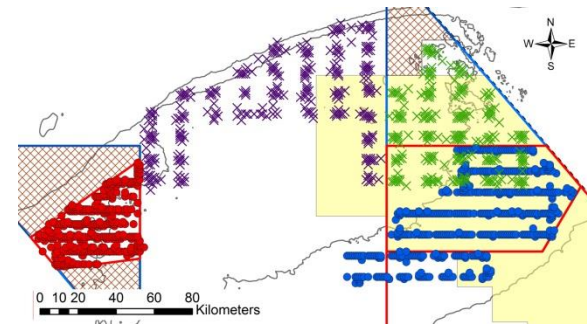
- More windowpane flounder than yellowtail flounder were caught in the scallop access areas of CAI and CAII
- The seasonal shifts in yellowtail and windowpane flounder catch were not the same



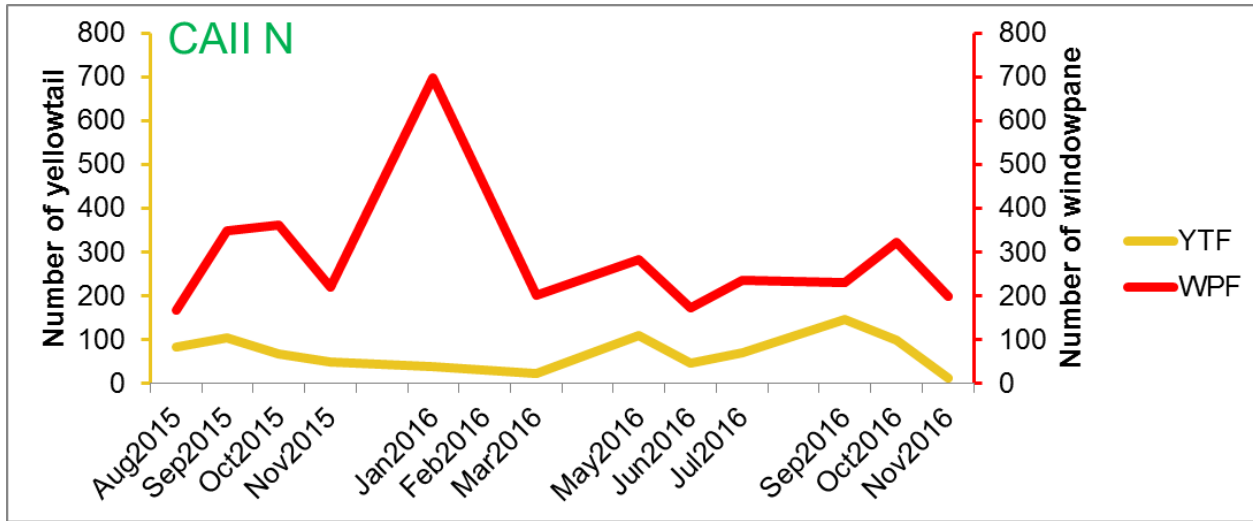
# Southern Georges Bank 2011 - 2014



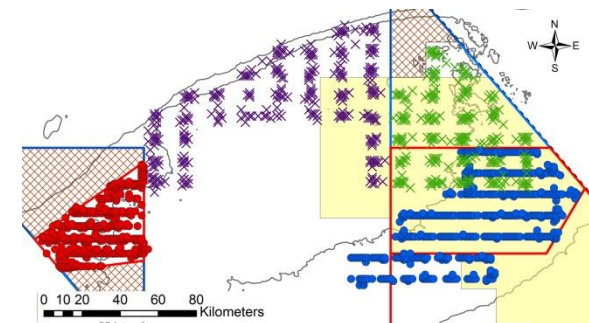
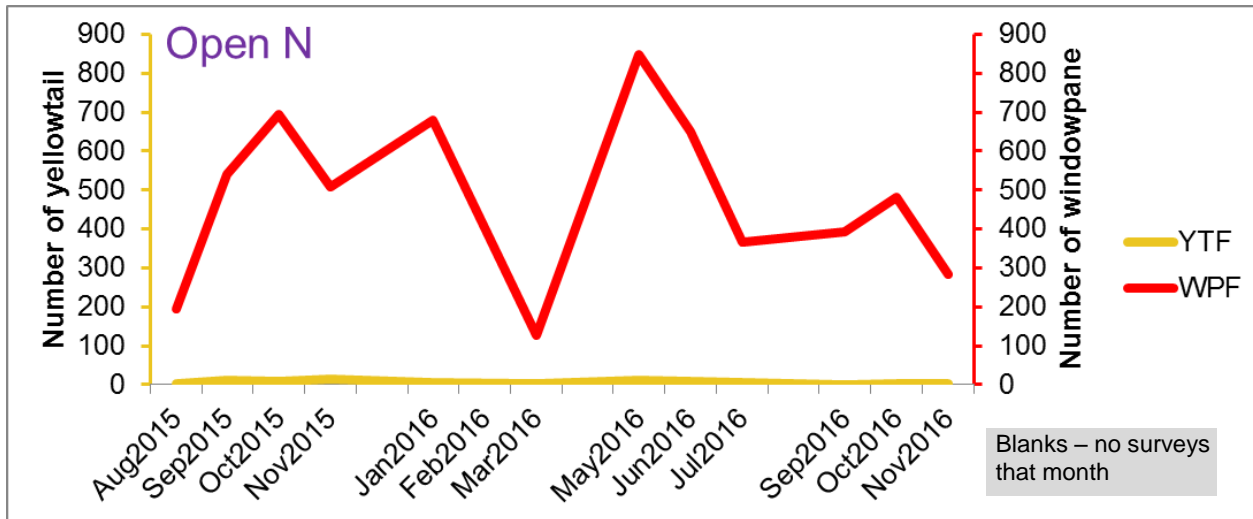
- In CAI S, windowpane flounder catch peaked when yellowtail flounder catch was low
- Similar but less pronounced trends occurred in CAI



# Northern Georges Bank 2015 - present

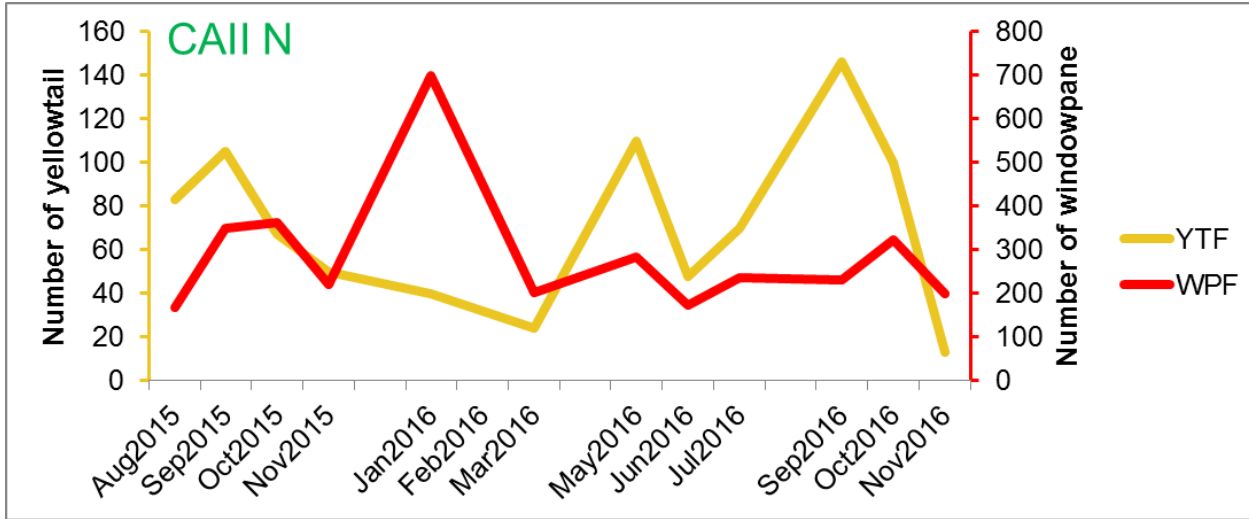


Windowpane flounder catch numbers in CAII (closed to scallop fishery) and the open area was much higher than yellowtail flounder catch numbers

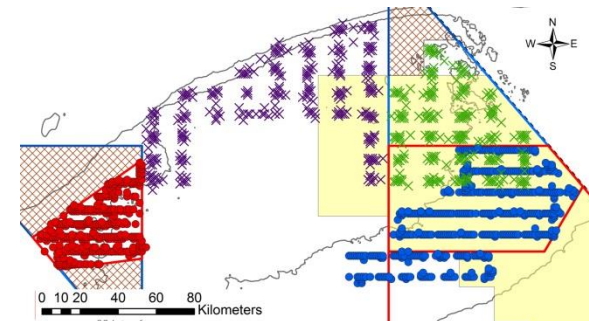
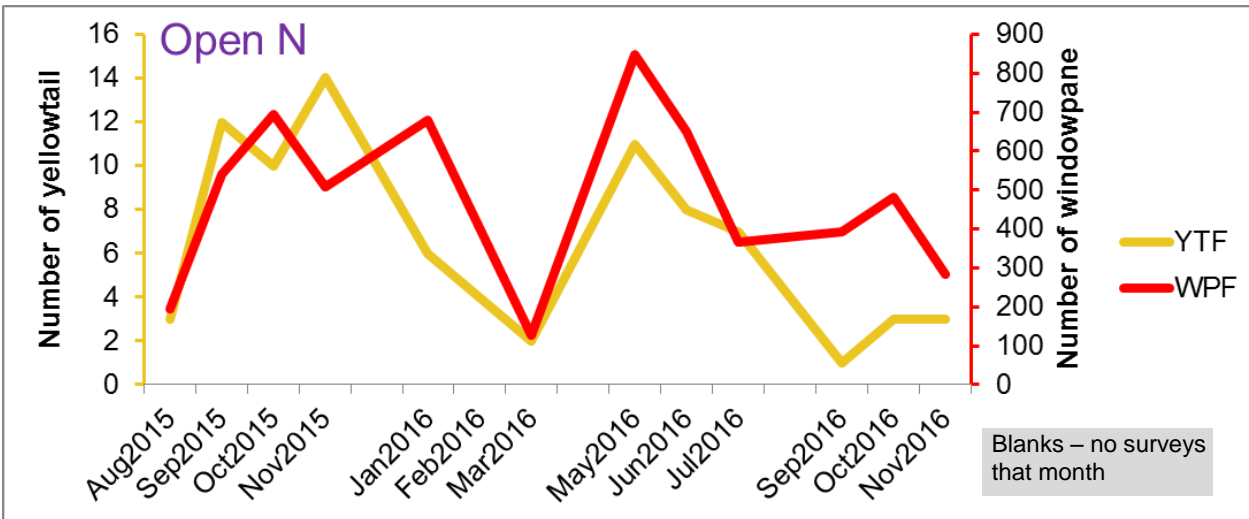




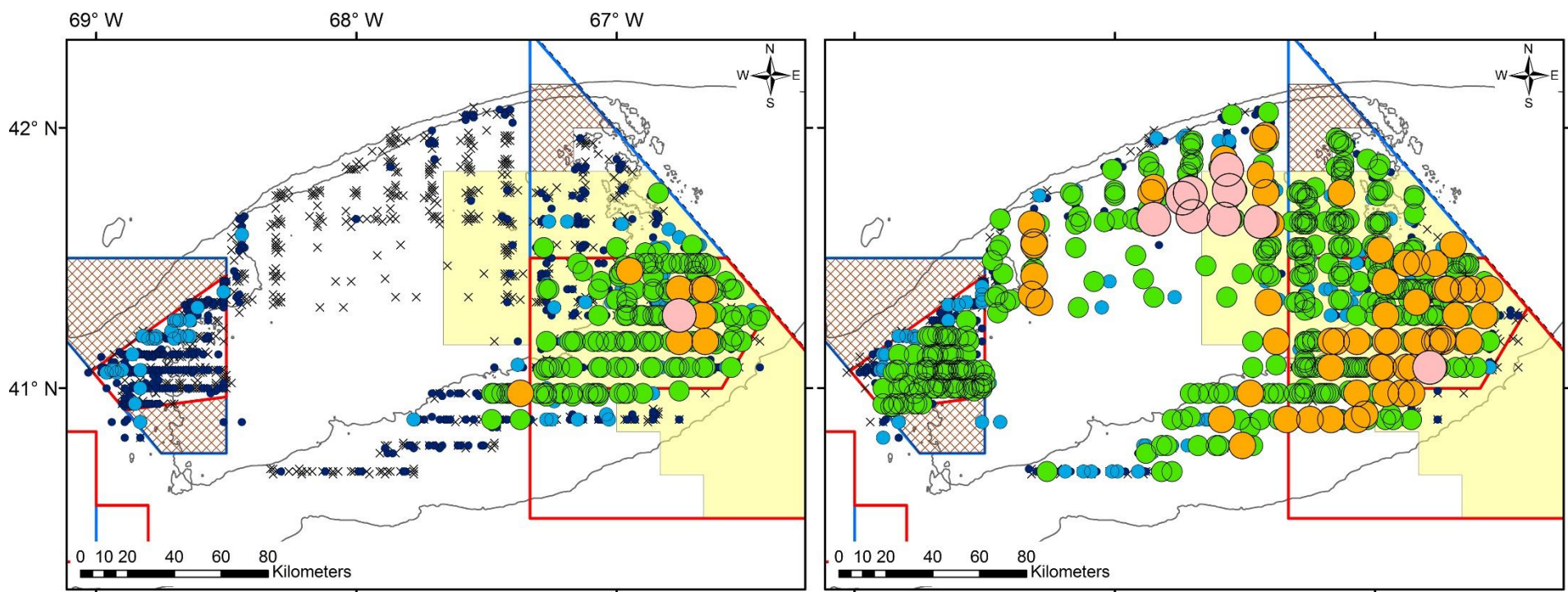
# Northern Georges Bank 2015 - present



- Trends in CAII N may be similar to those in CAII S
- Seasonal trends in windowpane catch in the area open to scallop fishing are not obvious (yet).



# Yellowtail vs windowpane flounder catch



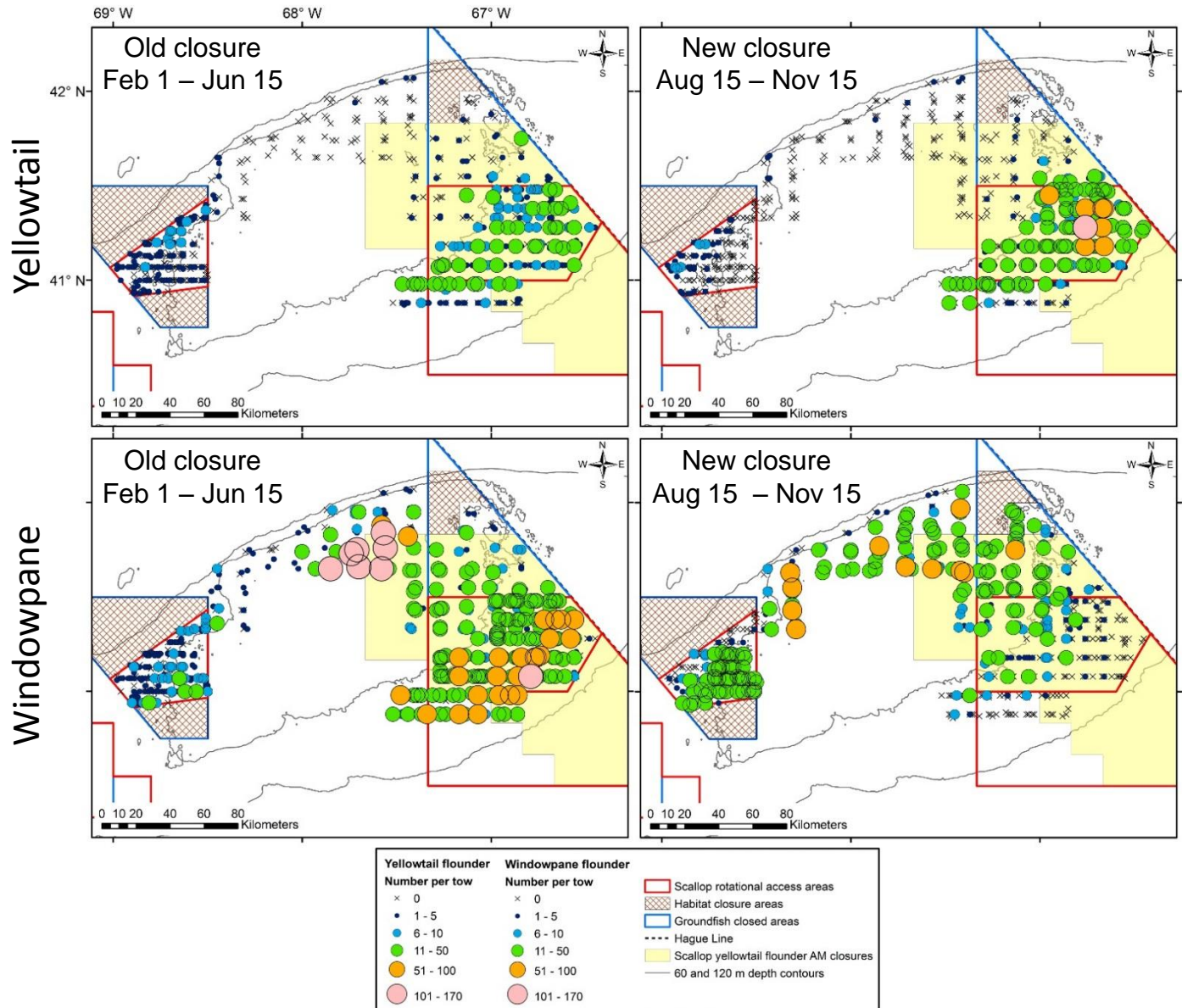
Most yellowtail flounder catch was in CAII S

Yellowtail flounder		Windowpane flounder		<ul style="list-style-type: none"> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Scallop rotational access areas</li> <li><span style="border: 1px dashed gray; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Habitat closure areas</li> <li><span style="border: 1px solid blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Groundfish closed areas</li> <li><span style="border-bottom: 1px dashed gray; display: inline-block; width: 15px; margin-right: 5px;"></span> Hague Line</li> <li><span style="background-color: yellow; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Scallop yellowtail flounder AM closures</li> <li><span style="border-bottom: 1px solid gray; display: inline-block; width: 15px; margin-right: 5px;"></span> 60 and 120 m depth contours</li> </ul>
Number per tow	Symbol	Number per tow	Symbol	
0	×	0	×	
1 - 5	•	1 - 5	•	
6 - 10	•	6 - 10	•	
11 - 50	•	11 - 50	•	
51 - 100	•	51 - 100	•	
101 - 170	•	101 - 170	•	

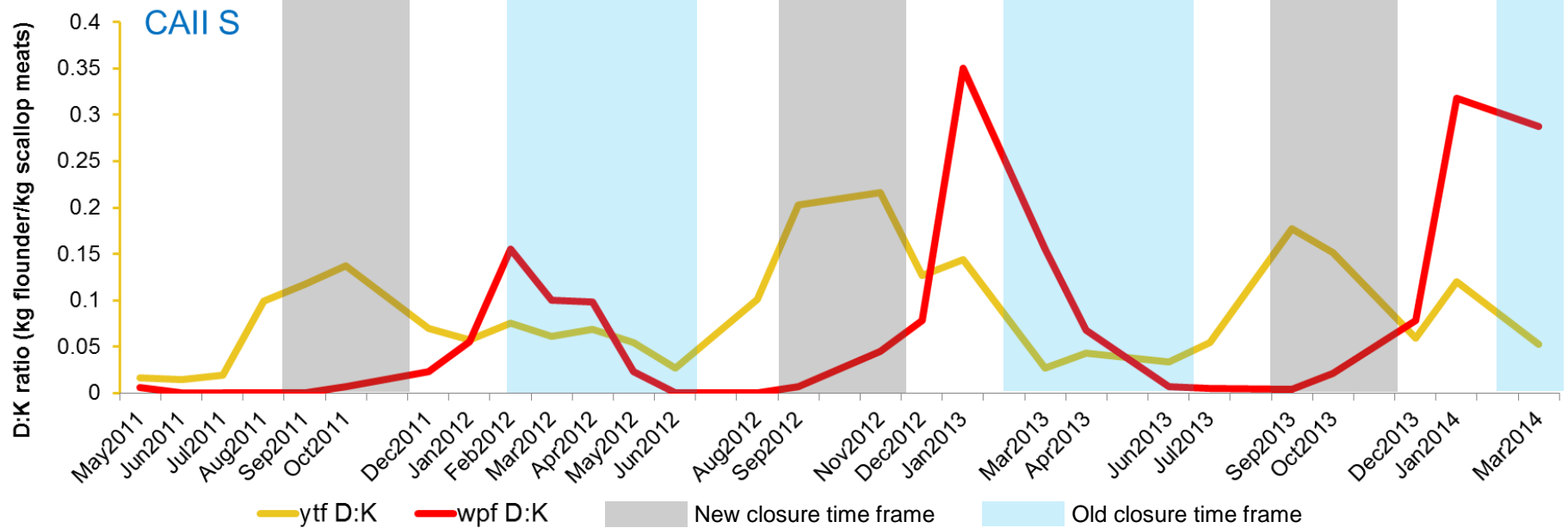
More windowpane flounder were caught across Georges Bank

# Yellowtail and windowpane flounder catch during rotational access periods

Win-win solution to reduce yellowtail flounder bycatch shifted CAII access to months with peak windowpane flounder abundance



# D:K ratios yellowtail vs windowpane flounder catch



- Scallop shell height – meat weight equation based on SHs and MWs collected from a representative subsample of scallops during the southern Georges Bank survey (GLM with gamma distribution)
- Total scallop catches calculated by using SHMW equation on measured bushels and expanding using catch in bushels for each station
- Total fish catches calculated by using fish length-weight equations based on individual lengths and weights collected during the northern Georges Bank survey (GLM with gamma distribution)

# Yellowtail and windowpane bycatch estimates

Georges Bank yellowtail catch in the scallop fleet			
Fishing year	Total catch all fisheries (mt)	Scallop LA catch estimate (mt)	Number of months scallop fleet had CAII S access during peak yellowtail abundance (Aug - Nov)
2011	179.84	83.86	4
2012	199.22	135.11	4
2013*	354.81	15.98	0
2014	214.67	36.49	0

Bycatch decreased

Northern windowpane catch in the scallop fleet			
Fishing year	Total catch all fisheries (mt)	Scallop LA catch estimate (mt)	Number of months scallop fleet had CAII S access during peak windowpane abundance (Jan - Apr)
2011	179.84	32.72	1
2012	199.22	34.85	1
2013*	354.81	63.37	2
2014	214.67	95.37	4

Bycatch increased

- Has northern windowpane catch in the scallop fleet increased because scallop fleet has access to CAII S during peak windowpane abundance months?
- Can bycatch of both species be minimized when they occupy CAII S during different months?

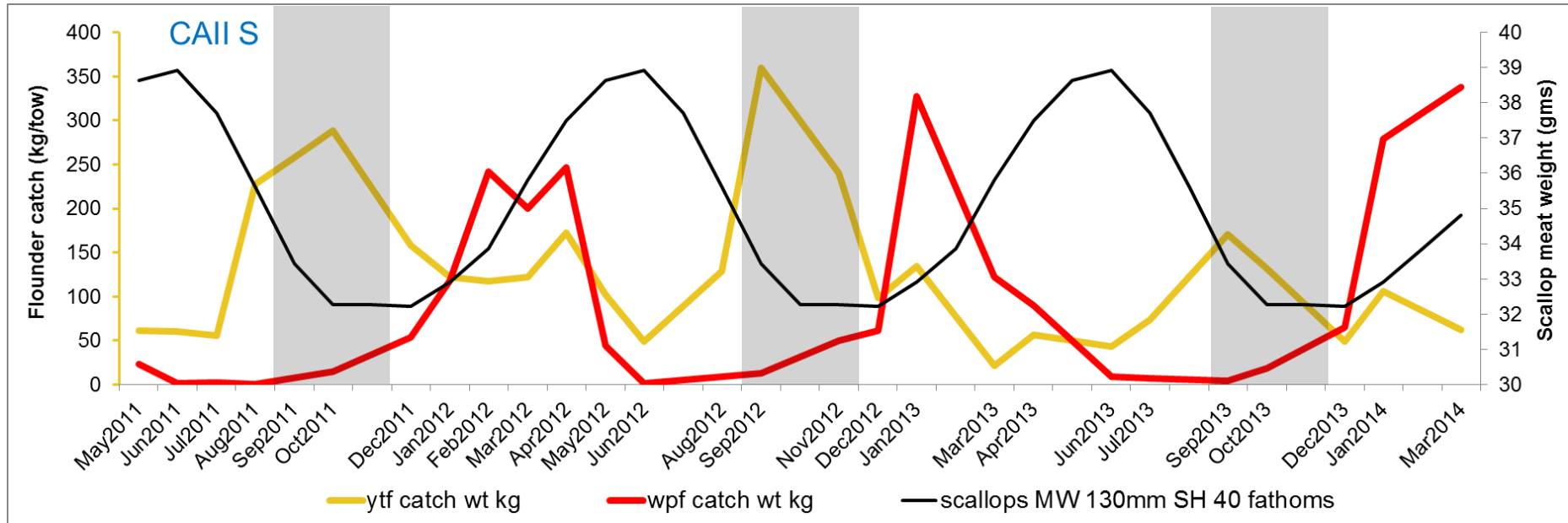
Data from

NOAA Reports - Yellowtail Flounder Sub-ACL for the Directed Scallop Fishery Georges Bank Stock Area NEFMC. 2016. Draft Alternatives - Framework Adjustment 56 to the Northeast Multispecies FMP

\*2013 was changeover year with part of old seasonal closure and new seasonal closure

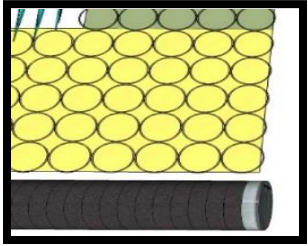
# What can be done?

Adjust seasonal closures to minimize bycatch of yellowtail and windowpane flounder (current seasonal closure highlighted in gray)



# What can be done? – scallop gear modifications

## 5-row apron



(2015 RSA bycatch ONGOING in 2016 bycatch)

2017 RSA bycatch

## Low-profile dredge



Old  
(2012 RSA gear)

New  
(2015 S-K - ONGOING)

2017 RSA modelling and flume

## Extended links



Two-way  
(2016 RSA LA gear - ONGOING)

One-way  
(2016 RSA gear commercial trips)

2017 RSA gear

## Flounder sweep



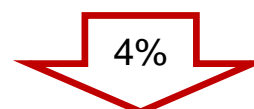
(2016 RSA LAGC gear - ONGOING)

Proposal to BREP – test on LA vessels

## Scallops

## YTF

## WPF



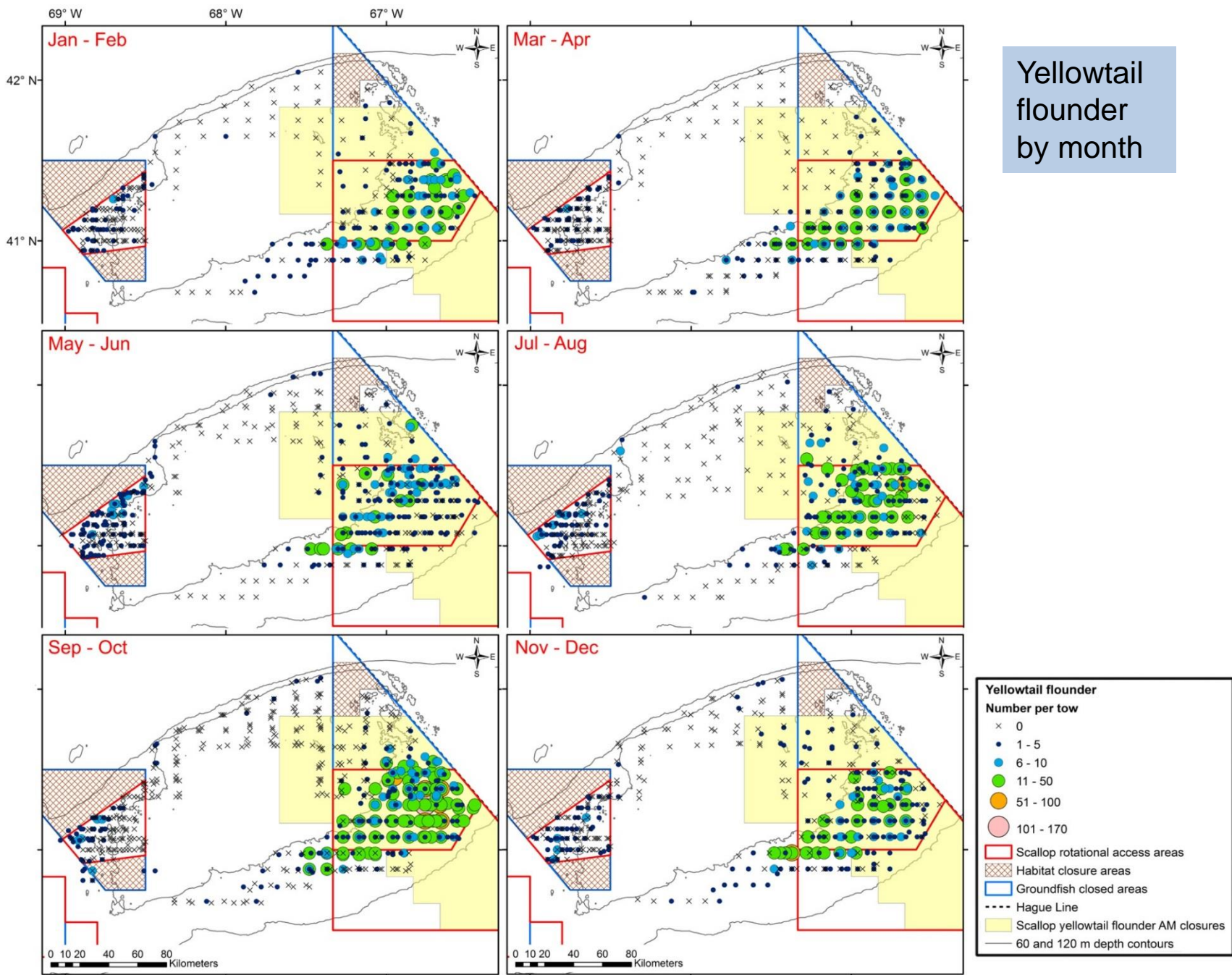
Filled = significant reduction in catch (bushels/numbers)

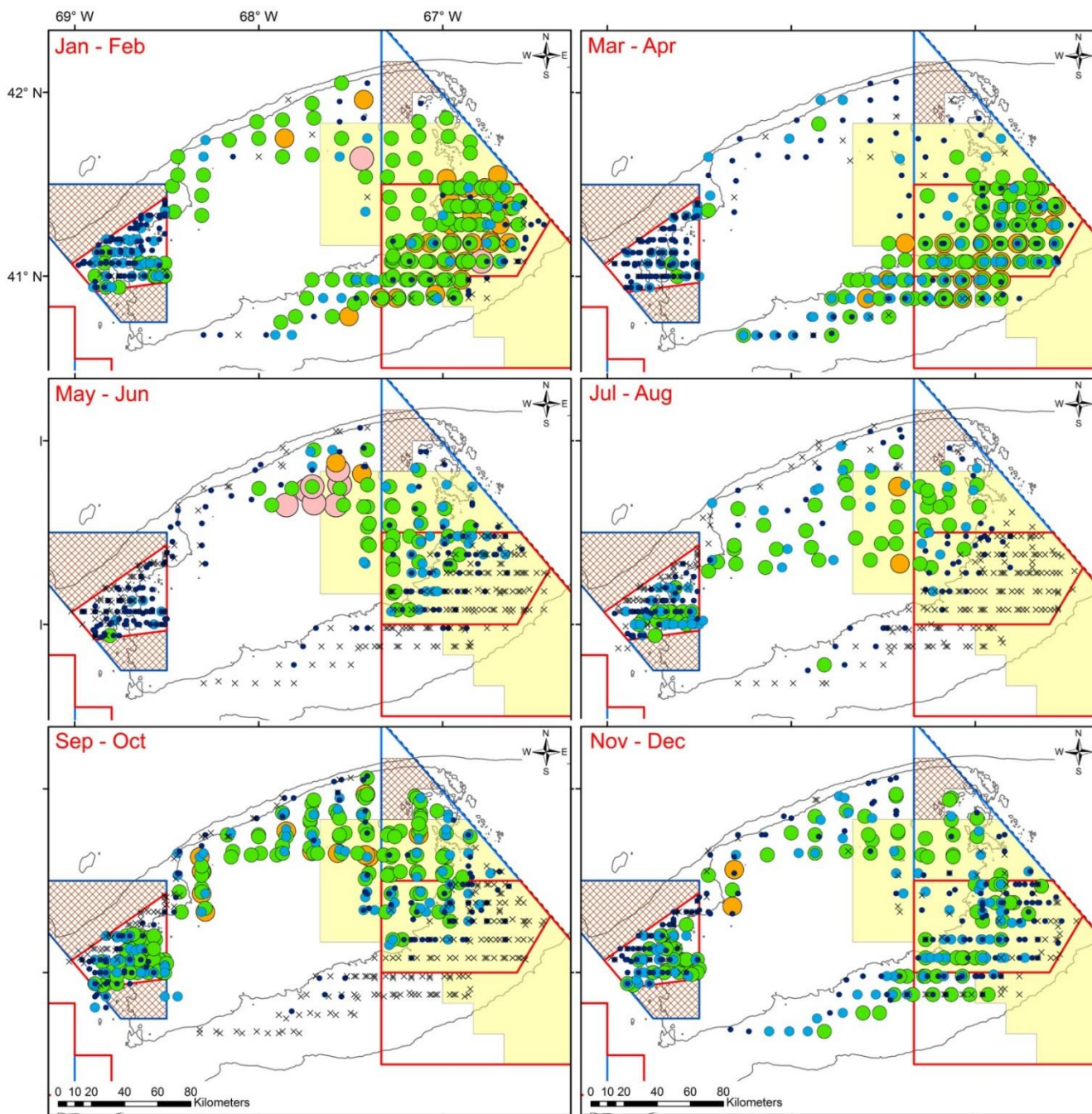
- Cover net to quantify loss/escapement through twine top vs apron (preliminary tests promising - proposal to BREP)



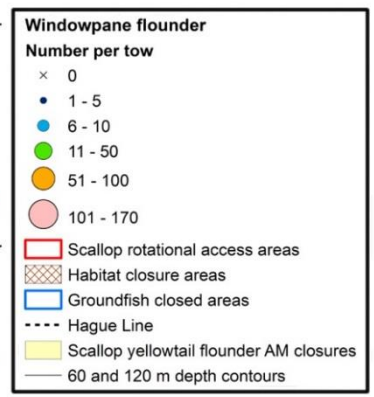
Extra slides



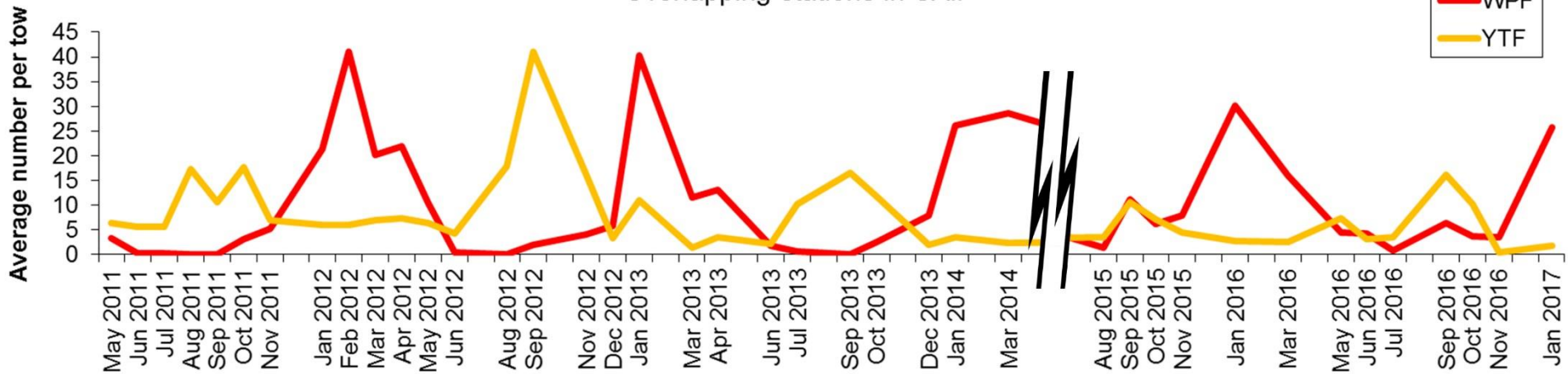




Windowpane flounder by month



### Overlapping stations in CAII



# Yellowtail and windowpane bycatch estimates

## Preliminary yellowtail and windowpane flounder bycatch estimates for FY2017 LA scallop fleet

Basic Run with 30 DAS (Projected landings of 49.2 mil. lbs)

### Georges Bank Yellowtail Flounder (GB YT)

2017 Projections	Bycatch Estimate (mt)
Georges Bank Open	12.7
Closed Area II South	50.1
<b>TOTAL GB YT ESTIMATE</b>	<b>62.8</b>
Likely ABC (16% of US ABC)	~33 mt

### Northern Windowpane Flounder (NWP)

2017 Projections	Bycatch Estimate (mt)
Georges Bank Open	27.6
Closed Area II South	79.8
<b>TOTAL NWP ESTIMATE</b>	<b>107.4</b>
(Council considering sub-ACL)	

NEFMC. 2016. Projections of bycatch in Scallop Framework 28. Draft memorandum from the Scallop PDT to the Groundfish PDT.