



Atlantic States Marine Fisheries Commission

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A Review of the Southern New England/Mid-Atlantic Winter Flounder Fishery and Management Program Under Zero Possession Limits

Winter Flounder Technical Committee
January 2016

Statement of the Problem

The Winter Flounder Management Board (Board) met on November 3, 2015 to review the most recent stock assessment updates for Southern New England/Mid-Atlantic (SNE/MA) and the Gulf of Maine (GOM), and discuss potential management responses. Based on the Northeast Fisheries Science Center (NEFSC) operational (update) stock assessment for GOM, the stock biomass status is unknown and overfishing is not occurring. The SNE/MA winter flounder stock is overfished but overfishing is not occurring.

The Board is concerned about the status of winter flounder stocks, particularly the critical condition of the SNE/MA population. Information from the 2015 stock assessment indicates the SNE/MA stock is overfished and biomass estimates are at 23% of the target. While there have been some modest increases over the last decade, the stock has remained at approximately a quarter of the target since the early 2000s. Since 1981 recruitment has been declining, 2013 is the lowest in the time series which is approximately 4% of the estimated recruitment in 1981 (the highest in the time series). While the 2014 recruitment estimate increased slightly, the overall SNE/MA stock productivity continues to decline.

Board Tasks

The Board requested the Technical Committee (TC) further investigate the impacts of the zero possession limit on the SNE/MA stock, effective May 1, 2009 through April 30, 2013. Specific tasks include:

1. *Review 2015 stock assessment update for SNE/MA:* The Board asks that the TC review the current management measures and suggest alternatives, if necessary.
2. *Investigate the effects on SNE/MA biomass during heightened federal restrictions (2009-2013):* At present the stocks are not responding to lower exploitation rates, the Board is interested in understanding if the stocks were beginning to see modest improvement while restrictions were in place. For example, when looking at data from 2009-2013, what was the effect of low fishing mortality on the SNE/MA biomass?

Background—Management Overview

Zero Possession Limit in Federal Waters

In 2008, the Groundfish Assessment Review Meeting (GARM III) estimated that the SNE/MA spawning stock biomass (SSB) was at 9% of the target biomass with fishing mortality (F) at 260% of the target.

NMFS implemented an interim rule, effective May 1, 2009, to immediately address and reduce overfishing in the SNE/MA winter flounder fishery (among others). A zero possession limit for the commercial and recreational fishery in federal waters was implemented from May 1, 2009 through April 30, 2013.

Beginning May 1, 2013, SNE/MA winter flounder was allocated (lifting the zero possession limit) via Framework 50. Sector vessels were given an allocation of the stock and required to land all legal-sized SNE/MA winter flounder (Figure 10). Common pool vessels were allowed to land legal-sized fish within the trip limit and quota (Figure 11). If the common pool winter flounder quota is caught then the SNE/MA winter flounder stock area is closed to all fishing for common pool vessels. The minimum fish size for SNE/MA winter flounder for both commercial and recreational vessels was (and remains) 12 inches.

ASMFC Management Measures and Rationale

In 2009, the Board approved Addendum I to Amendment 1 of the Interstate Fishery Management Plan (FMP) for Winter Flounder. Commercial trip limits for SNE/MA were reduced to 50 pounds or 38 fish per vessels, per day (Figure 12). The trip limit, which remains in place, was intended to solely allow for bycatch. The recreational possession limit was set at two winter flounder. Zero possession limits were considered by the Board, however there was concern it would increase discards and the Board felt fisheries dependent data would be beneficial for future stock assessments.

In 2014, the Board extended the recreational fishing season from 60 days to ten months (March 1 through December 31), while maintaining the existing two fish creel limit (Figure 12). The intent was to increase fishing opportunities in the southern range where other species' availability may be limited later in the year.

TC Methodology

Trend Examination

The TC grouped state indices into three time periods 1) 2005-2008 (before the moratorium), 2) 2009-2012 (during the moratorium) and 3) 2013-2015 (after the moratorium). Condensing each time period into an average helped make overall comparisons over multiple state and federal indices easier to interpret. The total winter flounder catch and model estimates for SSB and Jan-1 abundance were also treated in a similar fashion for this comparison.

Age Structure Examination

The TC reviewed numbers per tow at age for three state indices from 2008 to 2015 (New Jersey ocean trawl survey, CT trawl survey, RI trawl survey). Time constraints prevented a more thorough examination of all the surveys. However, the recently updated assessment models results should be an overall reflection of combined inputs from all survey indices.

Commercial Trip Species Composition

The TC also examined commercial trawl trip species composition data to help determine possible management effects under the present output control management system in the federal fishery and the effort control system in state fisheries. Catch information from observer and at sea monitor (ASM) data was examined for the federal fishery and landings data was examined for Massachusetts state vessels.

TC Analysis (Task 2)

Trend Examination

Further investigation into model results appears to show less improvement in stock status from the moratorium than previously thought. Increases in SSB at the end of the time series came from an expansion of the population age structure. The increase was not due to a strong young year class. Therefore a greater proportion of the biomass is now comprised of cryptic biomass for older ages (plus group) since a dome shape selectivity is estimated in the model (Figure 1). There is no evidence in the surveys indices to suggest that biomass has increased recently. However, estimated abundance from the model also shows a declining trend over this time period (Figure 2). If future recruitment continues to decline then SSB will also decline in the long term. It is uncertain whether recruitment will increase in the future since the model suggests overfishing is no longer a concern. Productivity of this stock appears to have declined and factors which are causing reductions in recruitment are not well understood. It is unclear whether further reductions in catch will result in improvements of recruitment. However further conservation measures could perhaps increase the probability of improvements in recruitment.

Average catch during the moratorium years (2009-2012) was estimated at 519 mt which increase to an average of 914 mt (2013-2014) when the stock became allocated with the increases in the ABCs. The fishery did not catch their full allocation of SNE winter flounder when the stock was allocated in 2013 (Figure 3). Updated ABC's from 2016-2018 will be reduced significantly (53%) and are now similar to the ABCs that were put in place during the moratorium (Figure 3).

Most of the surveys indicate a declining trend in abundance which would suggest the moratorium did not result in an increase in the stock (Figure 4). This is consistent with state indices from New Jersey, Connecticut, Rhode Island, two of the three New York indices and the NEFSC indices (Figure 4).

Age Structure Examination

The Massachusetts young of year (YOY) index, the Little Neck Bay, New York YOY index, and the NJ age composition data show some indication of increased recruitment after the moratorium (Figure 5). However, if recruitment has improved recently then it was produced from SSB after the moratorium was lifted. During the moratorium recruitment appears to have been low in the indices. The relative increases shown in these select indices may indicate some localized improvement in recruitment within the stock complex.

During the moratorium, the New Jersey and Rhode Island survey's indicates that there was some expansion in the age structure during a time when the abundance indices were declining (Figure 6 – 2009-2012). Declines in the indices at age over this time period can be seen in Figure 7. However, there is less evidence of an expansion in the age structure in the CT survey. Unlike the CT and RI survey, after the moratorium the NJ survey suggests improvements in the age-1 index with further declines in the older/larger fish (Figure 6 – 2014-2015). The survey suggests some regions may have benefited from the lower catch during the moratorium, and perhaps stock improvements would have been realized if catch was kept lower for a longer period of time.

The TC cautions there is a high degree of variability across the indices. Overall, the TC believes the length of the moratorium may not have been long enough for concrete results to be determined.

Commercial Trip Species Composition

The trip composition analysis suggests that targeting behavior has decreased in MA state water fisheries with the implementation of the 50 pound trip limit. However some targeting behavior still appears to exist on a small number of trips. There also doesn't seem to be strong evidence of winter flounder targeting behavior in the federal fishery. However some targeting behavior can be seen when comparing distributions of trip catch composition before and after the moratorium (Figure 9). Elimination of all targeting behavior is likely very difficult when trips limits are above zero. This is evident in both the federal and state fisheries. Though with the quota based system in the federal fishery there is an incentive to avoid a particular stock when the quota becomes limiting.

TC Consensus Statement (Task 1)

The TC remains concerned about the SNE/MA stock due to a declining trend in recruitment over the time series. Any reduction to the ASMFC commercial trip limit of 50 pounds (intended for bycatch purposes) could perhaps further reduce the targeting behavior on a limited number of trips. However, further reductions in the trip limit will likely result in increases in discards on trips targeting other species. This would likely result in additional uncertainty with estimated removals and fishing mortality. The TC feels the trip limit controls are near their effective limits for controlling mortality. Further reduction in the trip limits may not result in a significant reduction in fishing mortality. The TC does not recommend further reduction in the trip limits at this time. If further conservation measures are required in order to increase the probability of

improvements in recruitment then other management controls should be considered. However these additional controls (closed areas, seasonal closures, days at sea, quotas) will also result in reductions in catch and revenue from other fisheries. It is also no longer clear if these additional controls will result in improved SNE winter flounder stock productivity.

The TC encourages the Board to choose management actions that continue to reduce targeting and fishing morality, in an effort for SNE/MA winter flounder to remain a bycatch fishery in state waters. If possible, it is believed similar actions in federal waters could have a positive effect on the resource. The TC acknowledges that the 2016-2018 approved specifications include reduced ABCs (from 1,676 mt in 2015 to 708 mt in 2016, Figure 10), which are based on the 2015 groundfish stock assessment update. However whether further reductions in the ABCs would result in improvements in recruitment is unknown. Regardless further reductions in the actual catch of winter flounder may already occur through a reduction in the updated SNE yellowtail ABC. Further reductions in the 2016 SNE winter flounder ABC will also likely start to reduce catch/revenue from other fisheries since this ACL may begin to limit the landings of other stocks. This is something that could perhaps be explored further but is difficult to determine presently without knowing what effect the new reductions in groundfish ACLs will have on the fishery.

Lastly, the TC acknowledges there are divergent management approaches among the state and federal SNE/MA winter flounder fisheries. The state fishery is managed through input controls (effort controls, trip limits, seasons, etc.) and the federal fishery is managed through output controls (quotas). While different in approach, complimentary management moving forward could achieve a unified outcome that is beneficial to the resource and ultimately the fishery.

Figure 1. SNE winter flounder ASAP model estimates of SSB by age (top) and proportion SSB (bottom) from 1981 to 2014.

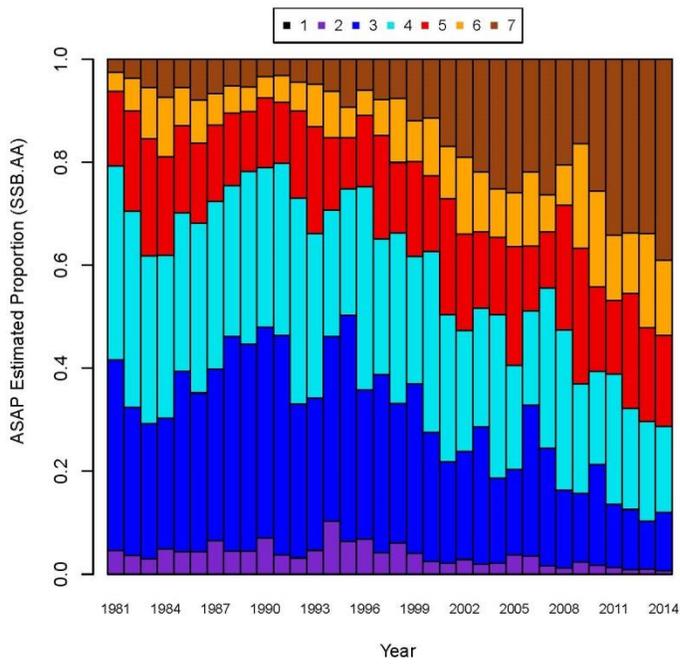
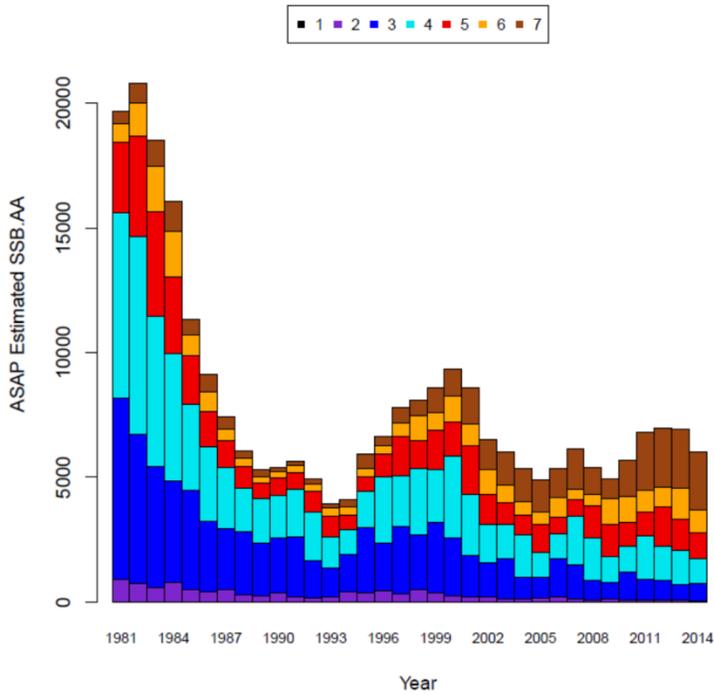


Figure 2. Trend analysis on total catch, SSB and Jan-1 abundance.

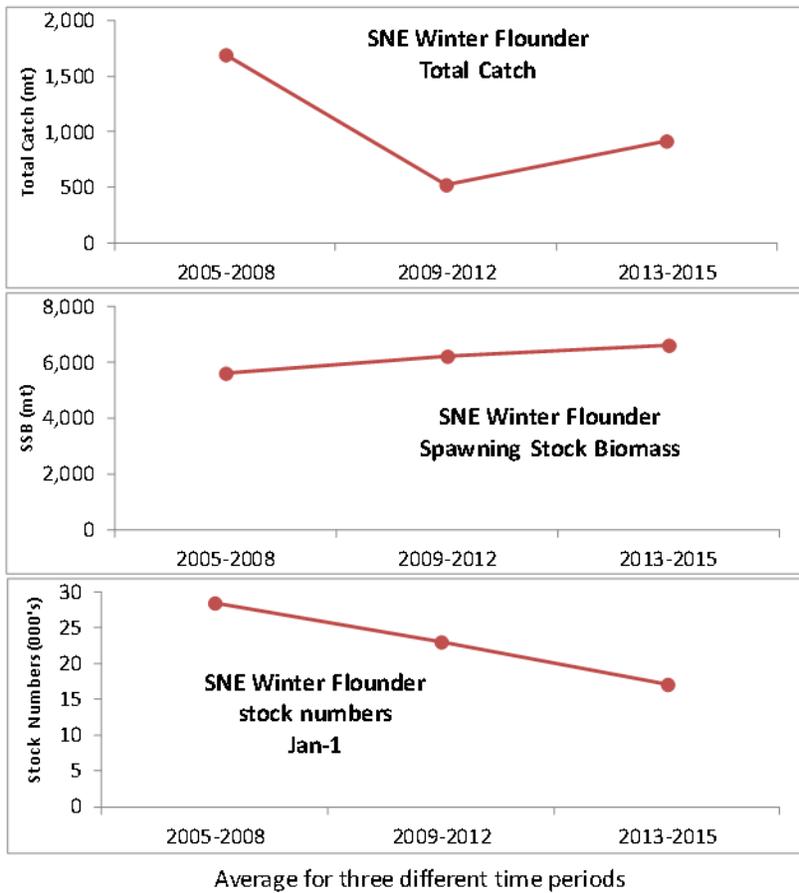


Figure 3. SNE winter flounder recent catch, historical and future ABCs, 2015 catch assumption using in projections, and the F_{MSY} projected catch.

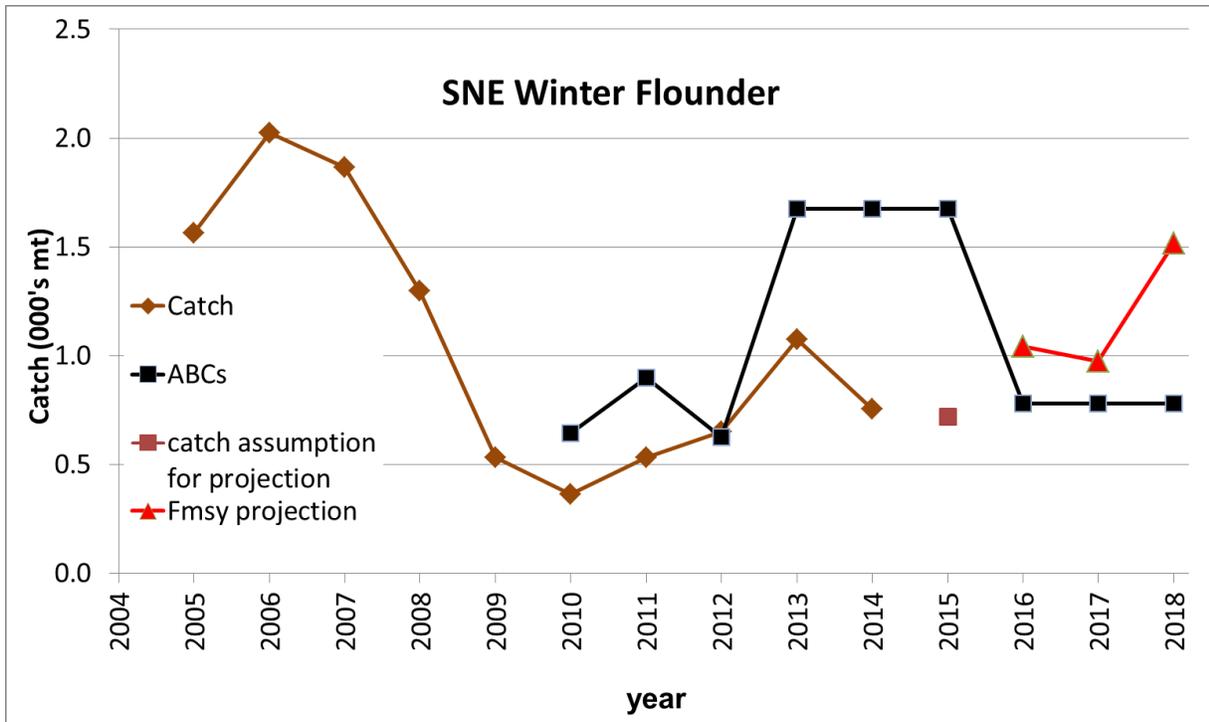


Figure 4. Trend analysis on survey indices.

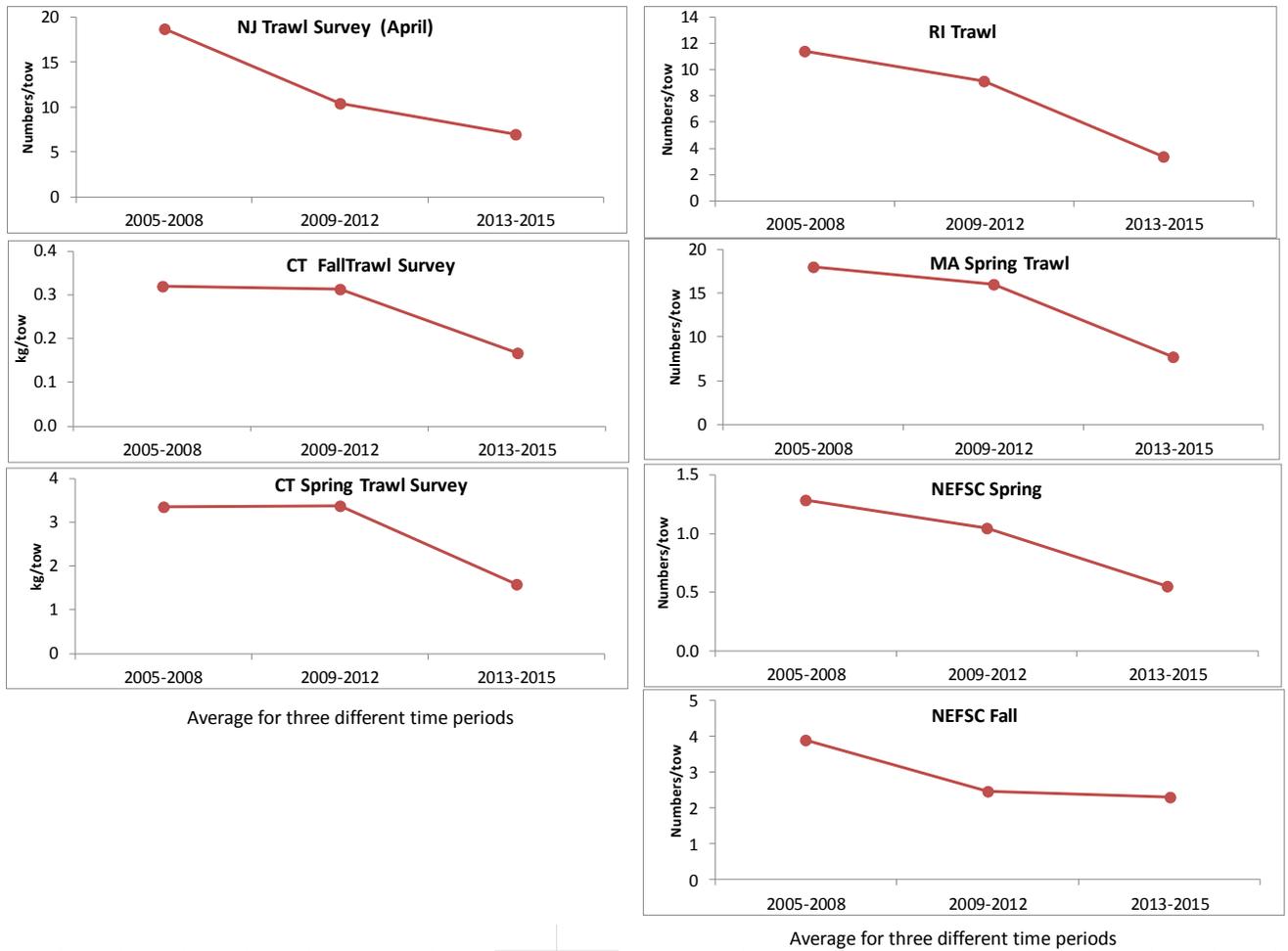


Figure 5. Trend analysis on young of the year indices.

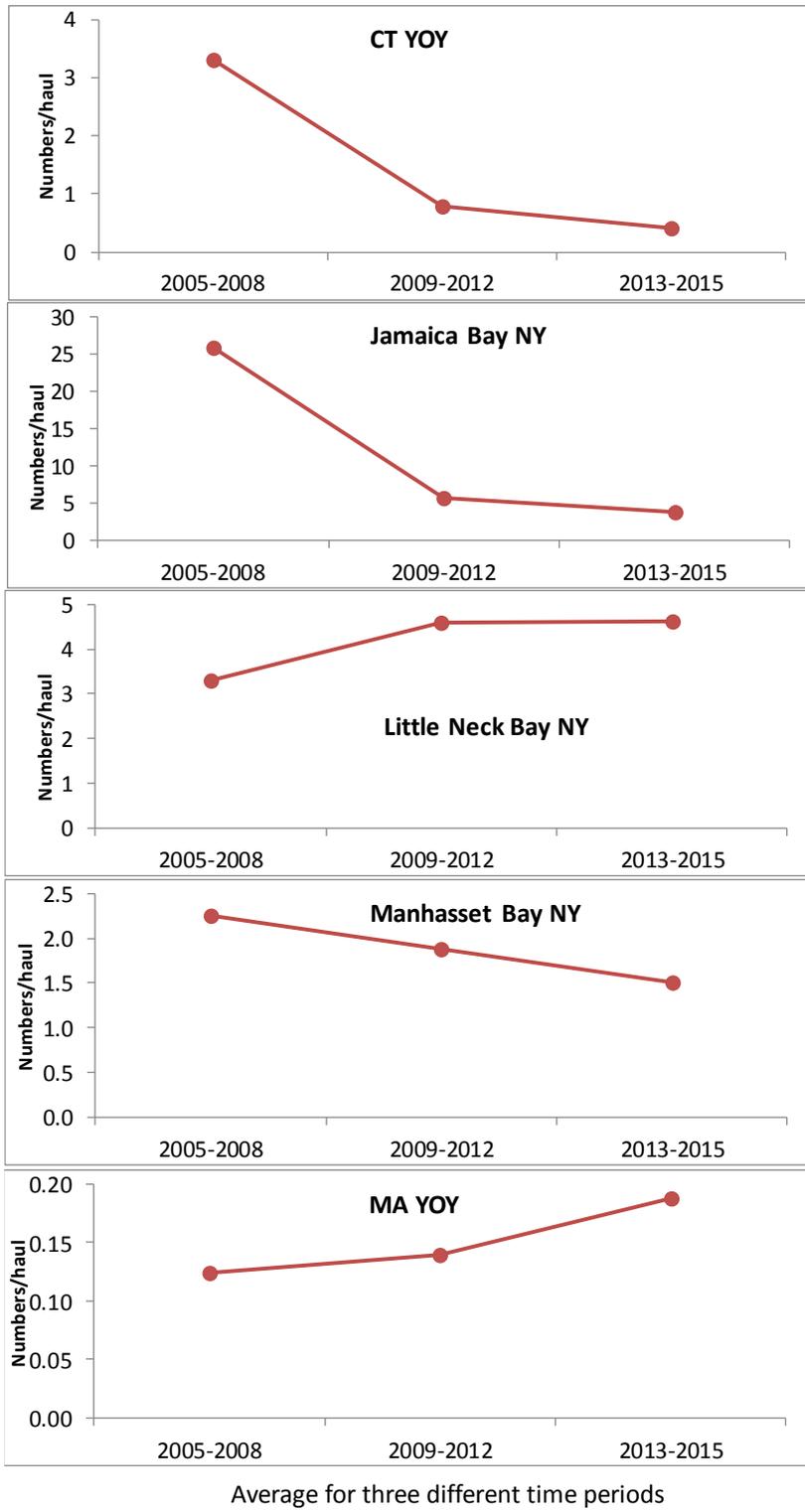


Figure 6. Age structure plots for the NJ, CT, and RI surveys in numbers per tow at age from 2008 to 2015 (when available).

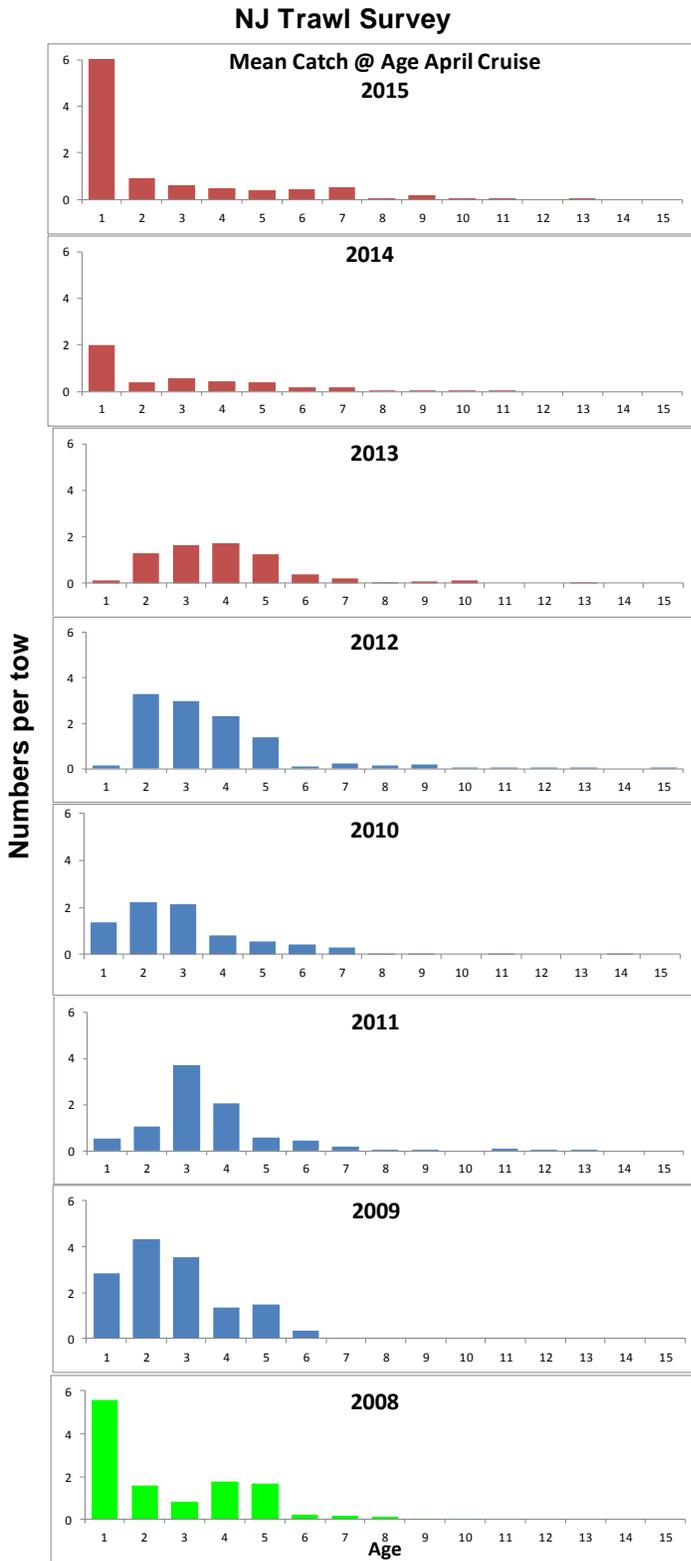


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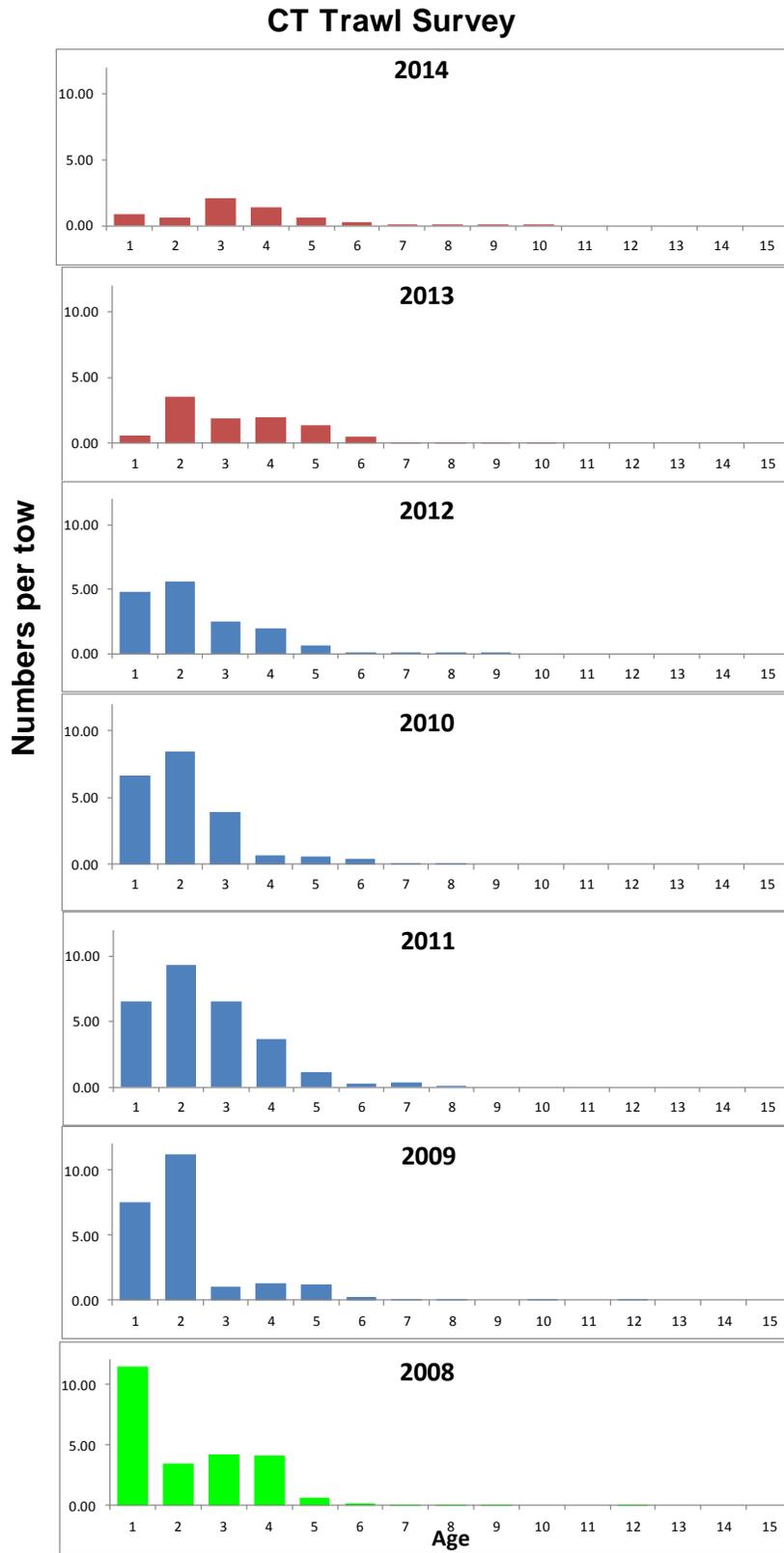


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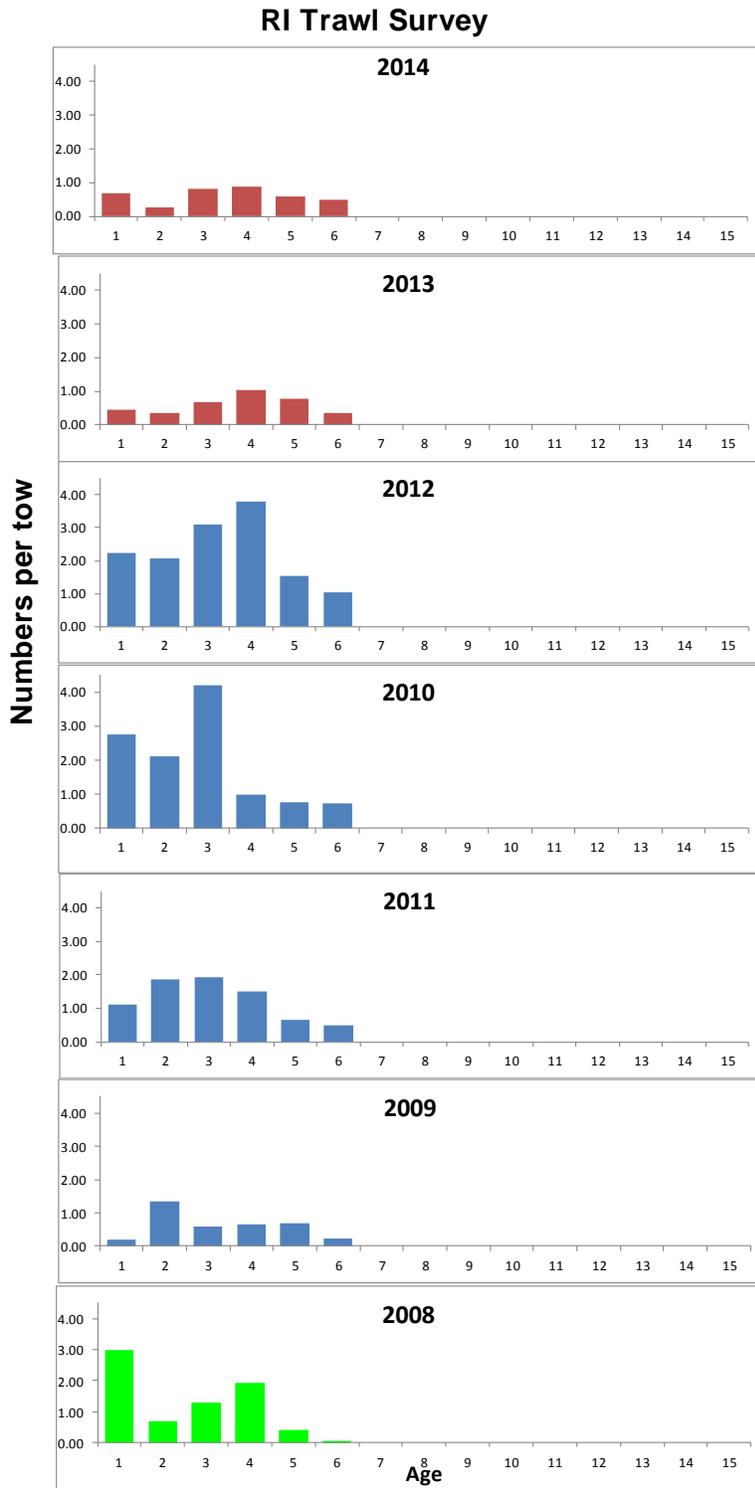


Figure 7. NJ, CT, and RI numbers per tow at age indices from 2008 to 2015 (when available).

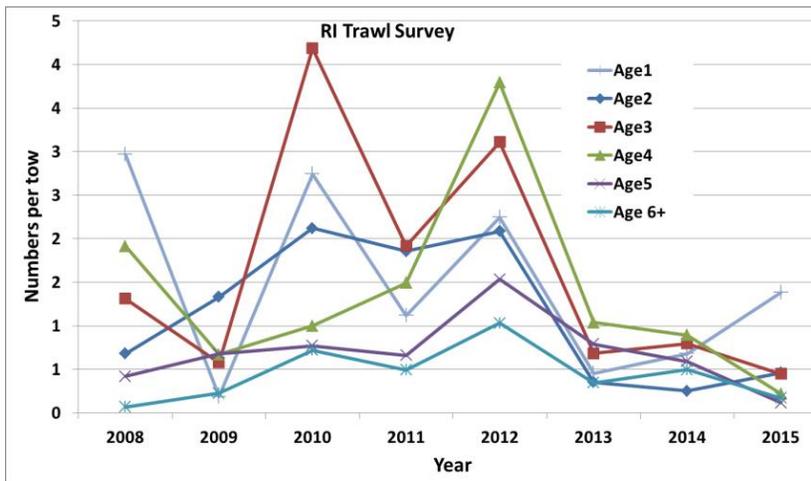
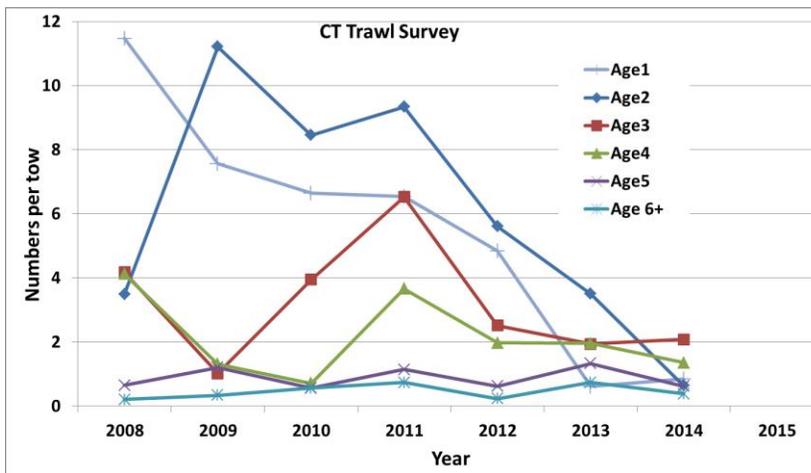
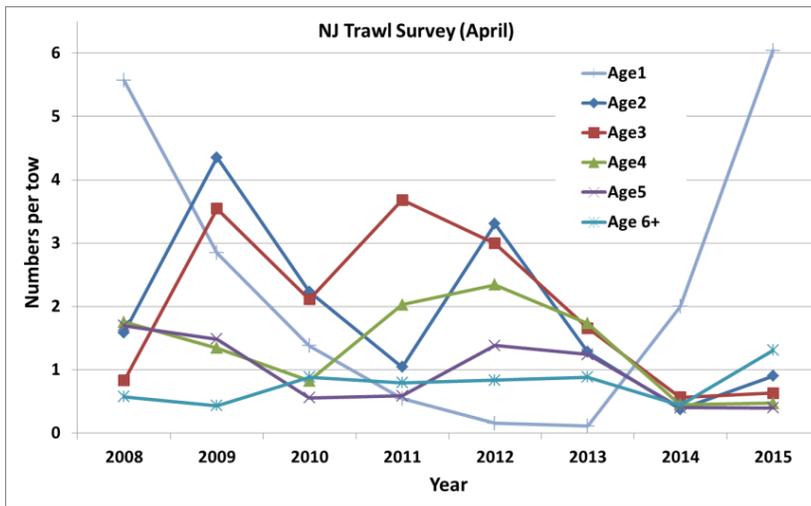


Figure 8. Massachusetts commercial annual dealer data (2006-2009, top) and trip level data (2010-2014, bottom) for SNE winter flounder stock area. Data represents multiple gear types from all trips that landed winter flounder. Number of trips are binned by percentages of winter flounder catch in the total reported catch.

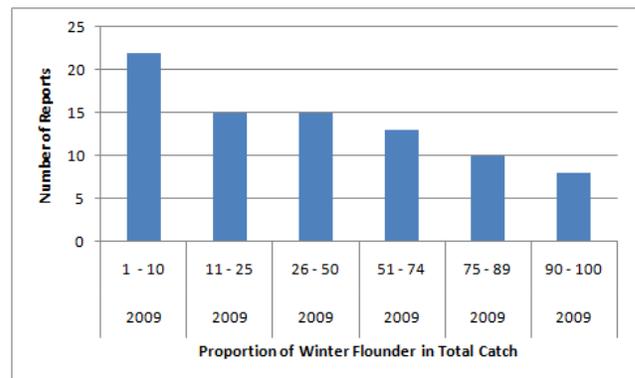
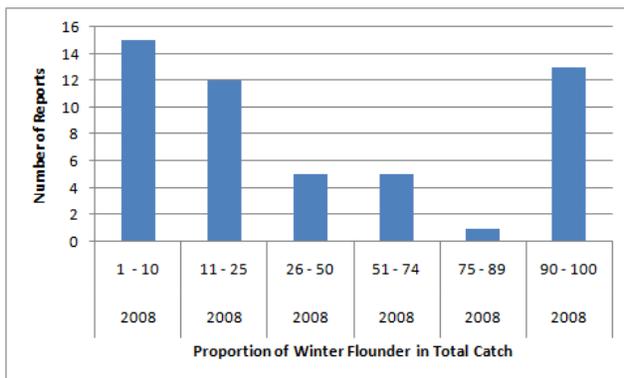
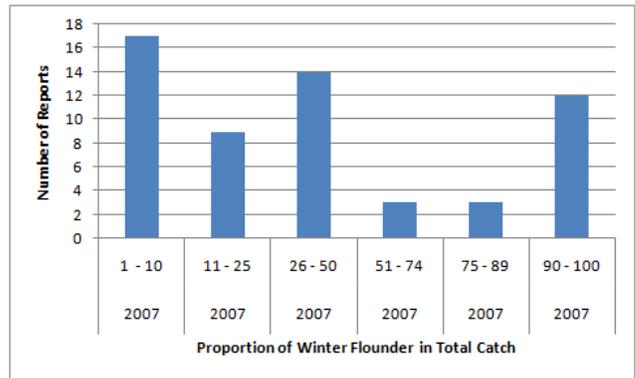
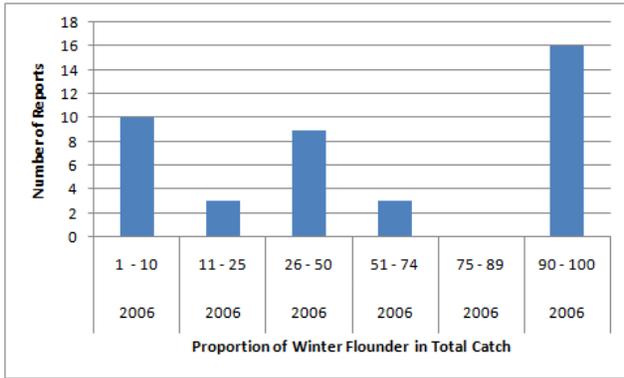


Figure 8 cont. Massachusetts commercial annual dealer data (2006-2009, top) and trip level data (2010-2014, bottom) for SNE winter flounder stock area. Data represents multiple gear types from all trips that landed winter flounder. Number of trips are binned by percentages of winter flounder catch in the total reported catch.

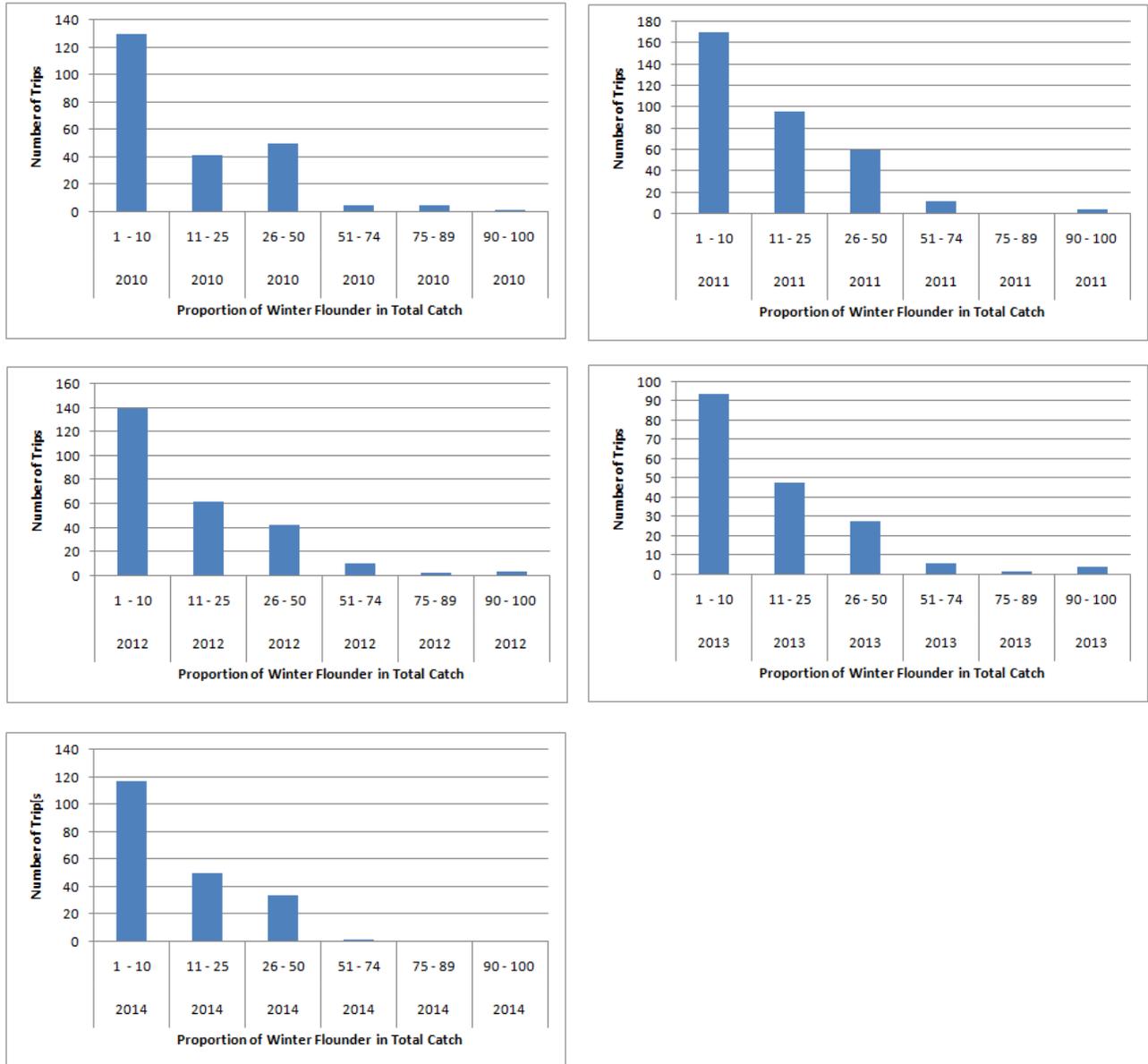


Figure 9. Trip catch composition plots using observer (NEFOP) and ASM data from 2009-20014 for large mesh trawl trips in the SNE stock area. X-axis is the total winter flounder catch to kept all species ratios. Total winter flounder catch is defined here as landings plus total discards. Discards are included in this analysis due to the moratorium that was in place from 2009-2012.

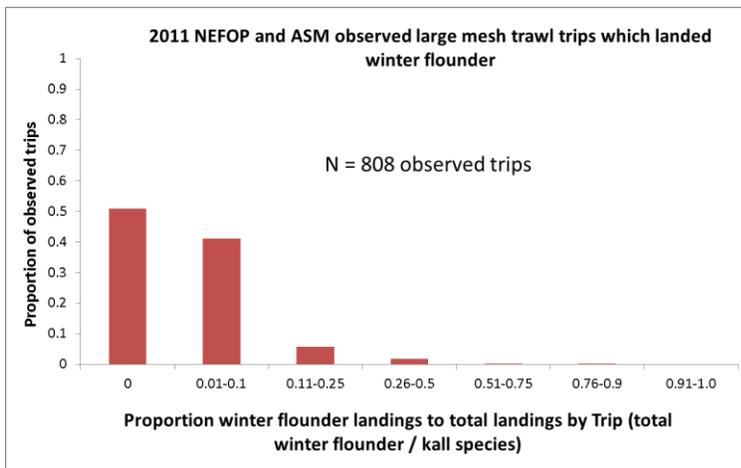
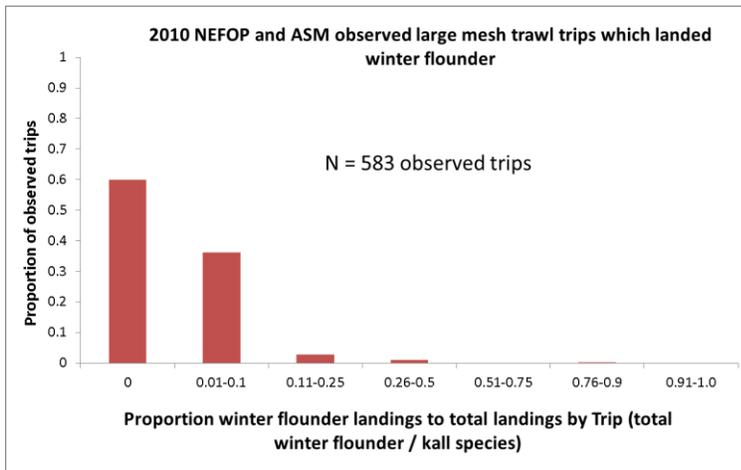
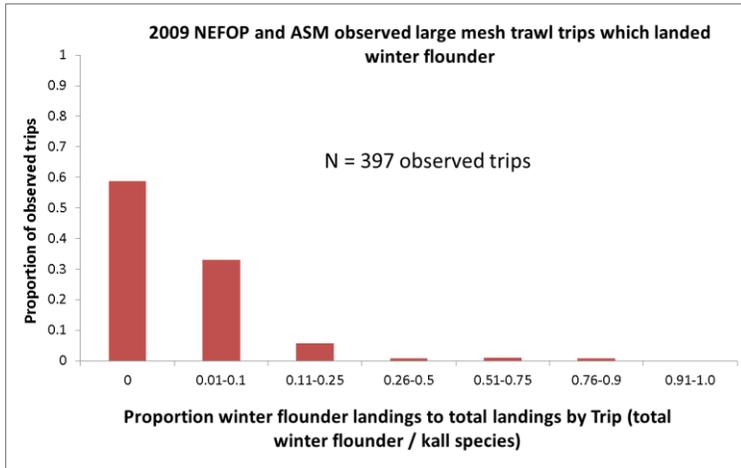


Figure 9. Cont.

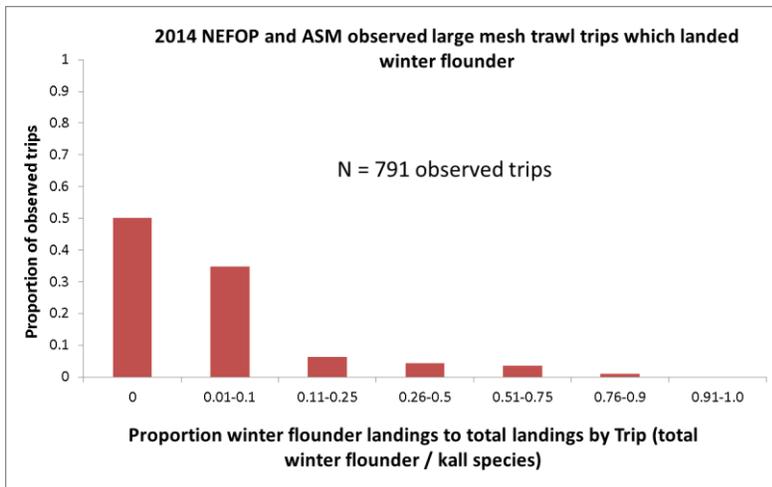
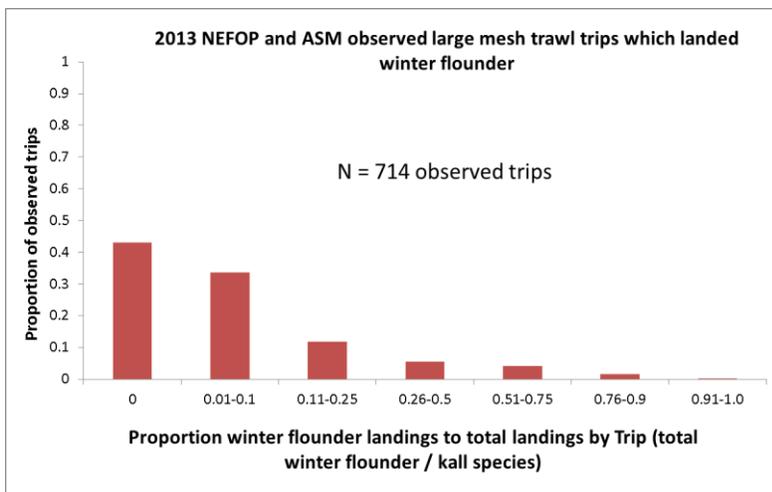
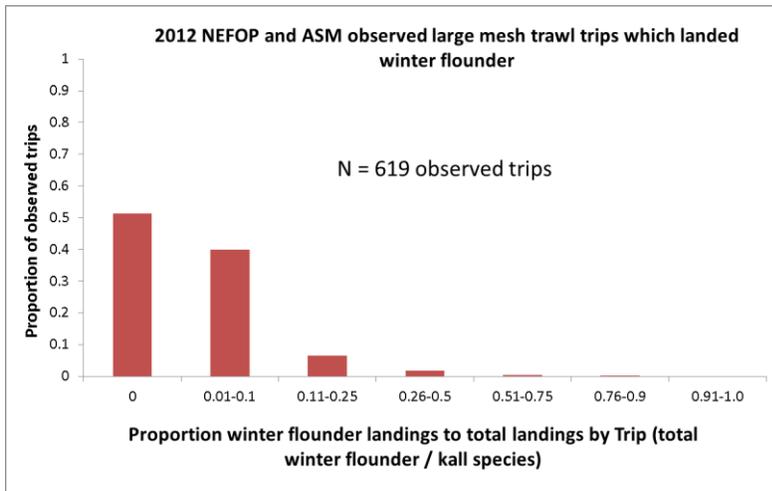


Figure 10. Annual Catch Limits for Winter Flounder, in metric tons, by fishing year (2010-2018)

SNE/MA					
	Total ACL	Sector Sub-ACL	Common Pool Sub-ACL*	State Waters ACL Subcomponent	Other ACL Subcomponents
2010	605	NA	NA	53	32
2011	842	NA	726	72	45
2012	603	NA	303	175	125
2013	1612	1074	136	235	168
2014	1612	1063	147	235	168
2015	1607	1149	157	117	184
2016-18**	749	514	71	70	94

* Unlike GOM, the SNE/MA stock is not managed under a trimester quota.

** The numbers are based on SSC ABC recommendations, which were subsequently approved by NEFMC in December 2015

Figure 11. Common Pool Trip Limits for Winter Flounder in Federal Waters

	2009	2010	2011	2012	2013			2014	2015
					2013a (May)	2013b (July)	2013c (Aug/Oct)		
GOM	Unlimited	250 lb/trip	100 lb/trip	250 lb/trip	500 lb/trip	500 lb/trip	2,000 lb/trip	1,000 lb/trip	1,000 lb/trip
SNE/MA	Zero	Zero	Zero	Zero	5,000 lb/DAS, up to 15,000 lb/trip	1,000 lb/trip	300 lb/trip	1,500 lb/DAS, up to 2,000 lb/trip	3,000 lb/DAS, up to 6,000 lb/trip

Figure 12. ASMFC Management Measures for Winter Flounder

Stock	Sector	Trip Limit/ Possession Limit	Size Limit	Season	Gear
GOM	Commerical	500 lbs per trip per day	12"	Maintain closures	Minimum 6.5" square or diamond mesh in cod-end
	Recreational	8 fish	12"	NA	
SNE/MA	Commerical	50 lbs/ 38 fish per trip per day	12"	Maintain closures	Minimum 6.5" square or diamond mesh in cod-end. 100-lb mesh trigger.
	Recreational	2 fish	12"	March 1 – December 31	

- Implemented in Amendment 1 in 2005
- Implemented in Addendum I in 2009
- Implemented in Addendum II in 2012; GOM trip limit increased from 250 lbs (via Addendum I) to 500 lbs.
- Varying closure dates were in place via Amendment 1, the new dates became effective through Board Action on February 2014