Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Winter Flounder Management Board

FROM: Winter Flounder Technical Committee

DATE: April 23, 2018

SUBJECT: Analysis on Proposal for Aggregate Weekly Limits in Commercial SNE/MA Fishery

At their February meeting, the Winter Flounder Management Board (Board) tasked the Winter Flounder Technical Committee (TC) with analyzing the potential impacts of aggregate trip limits in the commercial Southern New England/Mid-Atlantic (SNE/MA) winter flounder fishery. This task was in response to a proposal submitted by Rhode Island, which aims to provide greater flexibility to harvesters who are currently held to a 50 lb per day trip limit in state waters.

Background

Addendum I to the Winter Flounder FMP established a maximum possession limit of 50 lb in the commercial SNE/MA fishery. This low trip limit was in response to results of the 2008 Winter Flounder Stock Assessment which concluded that the SNE/MA winter flounder stock was severely depleted, with spawning stock biomass at only 9% of the target biomass[1]. While NOAA Fisheries established a moratorium in the SNE/MA fishery in federal waters, the Board implemented a 50 lb trip limit in state waters. The intent of this measure was to "achieve the lowest possible F rate while minimizing economic and social impacts, and dead discards, and prevent an influx of effort into state waters."[2] At the time, the Board did consider a zero possession limit; however, there were concerns that a moratorium may increase discarding and terminate the collection of fisheries-dependent data. As a result, the 50 lb trip limit was intended "solely to allow for bycatch"[3].

In April 2013, NOAA Fisheries removed the moratorium and allocated SNE/MA winter flounder to sectors and the common pool, allowing for the directed harvest of winter flounder while also making federal permit holders accountable for their catch. In contrast, the 50 lb trip limit in state waters remained. Results of the 2017 Operational Stock Assessment continue to conclude that the SNE/MA stock is overfished, with spawning stock biomass at record low abundance (4,360 mt in 2016 compared to 5,801 mt in 2008).[4] Overfishing is not occurring in the stock.[5]

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[1] NEFSC, 2008. Report of the 3rd Groundfish Assessment Review Meeting (GARM III). https://www.nefsc.noaa.gov/publications/crd/crd0815/crd0815.pdf

[2] ASMFC. 2009. Addendum I to Amendment 1 to the Interstate Fishery Management Plan for Inshore Stocks of Winter Flounder. http://www.asmfc.org/uploads/file/addendumIAm1.pdf

[3] ASMFC, 2009.

[4] NEFSC, 2017. Southern New England Mid-Atlantic Winter Flounder Operational Stock Assessment. https://www.nefsc.noaa.gov/publications/crd/crd1717/snema_winter_flounder.pdf

[5] NEFSC, 2017.

Proposal for Aggregate Trip Limits

Submitted in February 2018, Rhode Island's proposal seeks to provide flexibility to state-waters harvesters, and address inequities between state and federal regulations, by instituting an aggregate weekly limit in the commercial SNE/MA fishery. The proposal includes three management options for consideration; however, for the purposes of the TC's analysis, there are primarily two types of aggregate weekly limits.

- A 250 lb/week limit year-round
- A 350 lb/week limit in April – June and November – December. For the rest of the year, the limit would remain at 50 lb/day.

Data

To analyze the potential impacts of an aggregate weekly trip limit, the TC pulled landings data on the SNE/MA fishery between 2014 and 2016. More specifically, trip-level landings reports for state-only permit holders were gathered from the states of Massachusetts through New Jersey. These data included any trips which landed at least 1 pound of winter flounder; the name and poundage of all other species landed on the trip were also included in the data query. Vessels with federal permits were not included in this analysis since those vessels are limited by hard quotas regardless of whether they fish in federal or state waters. However, the present 50 lb trip limit in state waters is likely discouraging federal vessels from fishing in state waters.

Trends in the Data

As a first step, the TC investigated trends in the landings data from the SNE/MA stock. Figure 1 shows total commercial landings in the SNE/MA stock per year while Figures 2-4 show the number of winter flounder trips for each year (2014, 2015, 2016) by week and state. Overall, Figure 1 shows that state landings in the SNE/MA fishery have decreased from 2014 to 2016. Figures 2-4 illustrate that most of the trips are occurring in Rhode Island, with a significant number of trips also occurring in New York. In addition, the figures show clear seasonal trends in the fishery, with much of the effort occurring in the late-spring (weeks 18-24 generally correspond with May and early June). In all three years, there was also a smaller pulse of effort in the fishery at the end of the year (late October-December).

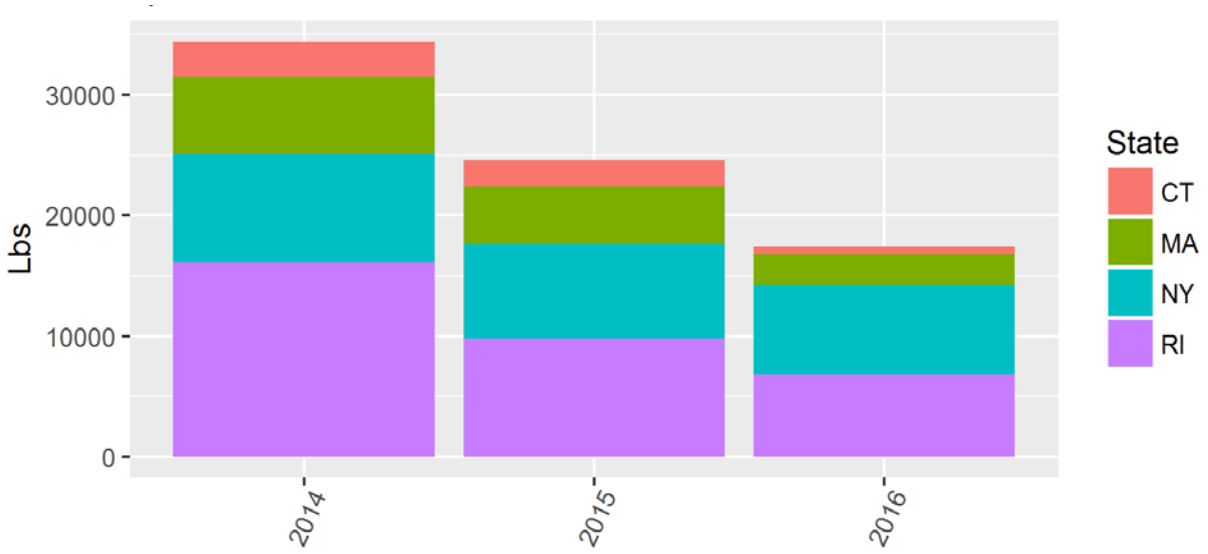


Figure 1: Pounds landed in the commercial SNE/MA winter flounder fishery by year and state. NJ data was omitted due to confidentiality rules.

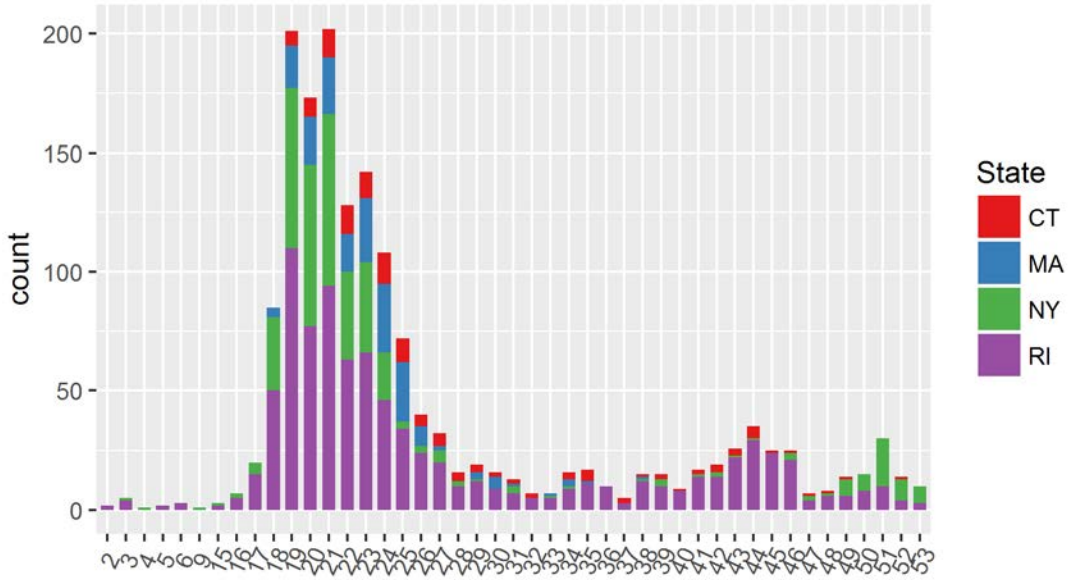


Figure 2: Number of winter flounder trips in 2014 by week and state. The x-axis represents each week in a calendar year. NJ data was omitted due to confidentiality rules.

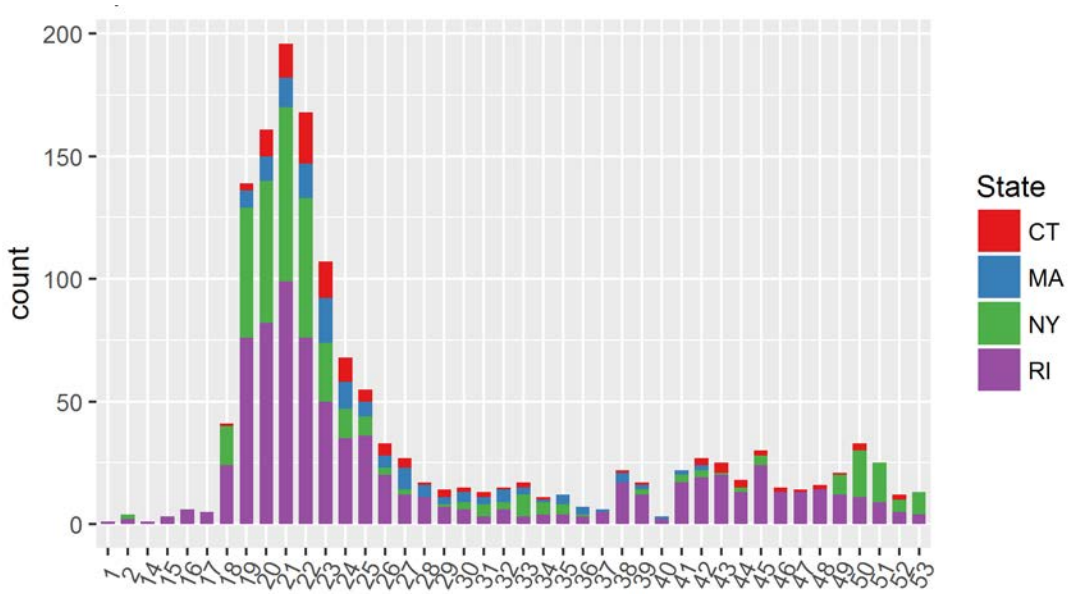


Figure 3: Number of winter flounder trips in 2015 by week and state. The x-axis represents each week in a calendar year. NJ data was omitted due to confidentiality rules.

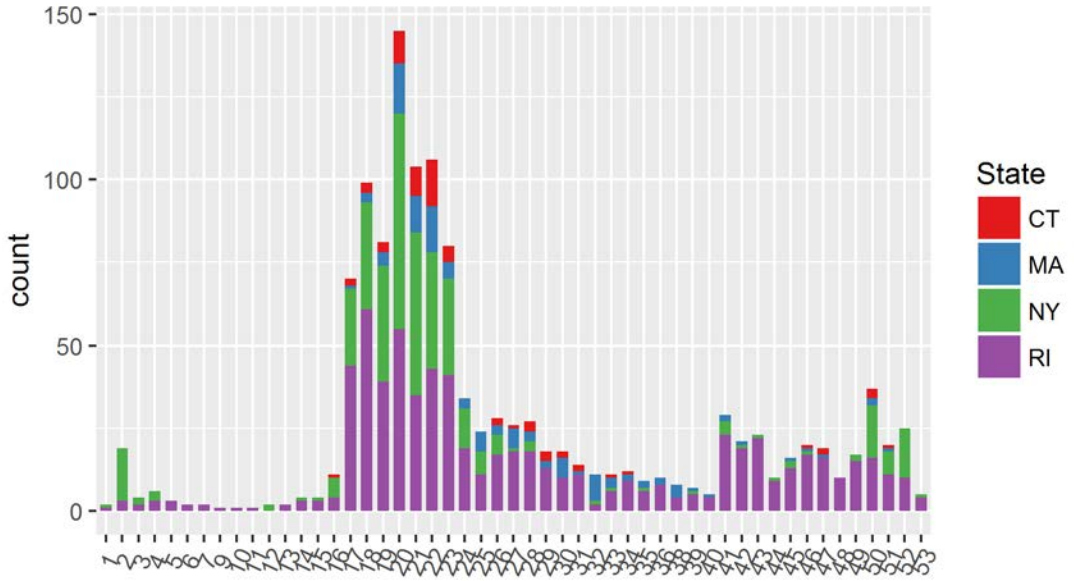


Figure 4: Number of winter flounder trips in 2016 by week and state. The x-axis represents each week in a calendar year. NJ data was omitted due to confidentiality rules.

Figures 5-7 show the landings of winter flounder, in pounds, for each year (2014, 2015, 2016) by week and state. Again, the graphs show that the highest landings are coming from Rhode Island and New York, and the greatest amount of winter founder are harvested in the late-spring (weeks 18-24 generally correspond with May and early June).

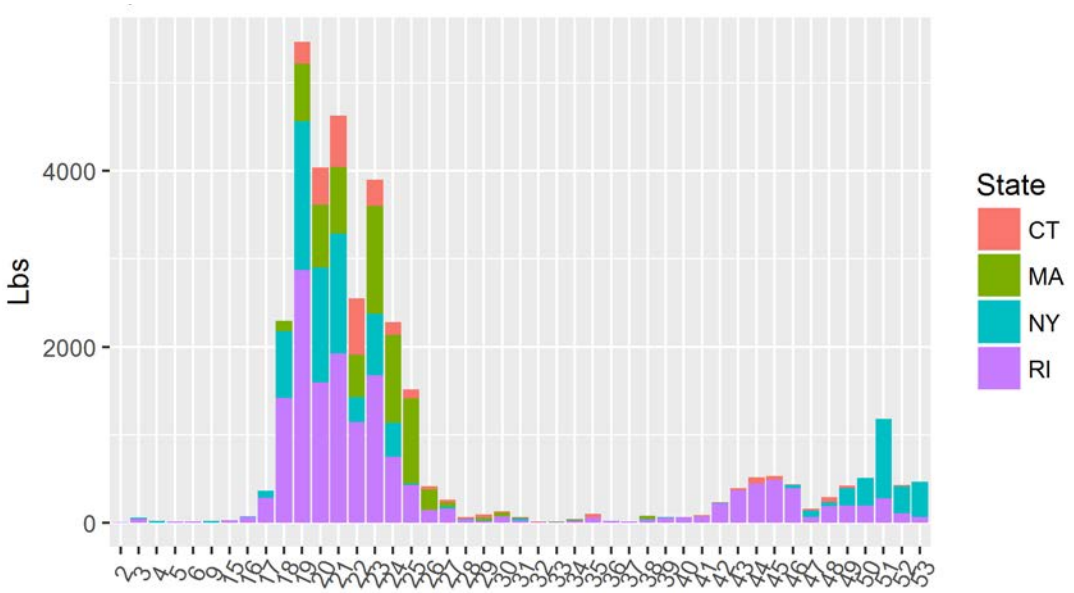


Figure 5: Pounds of winter flounder landed in 2014 by week and state. The x-axis represents each week in a calendar year. NJ data was omitted due to confidentiality rules.

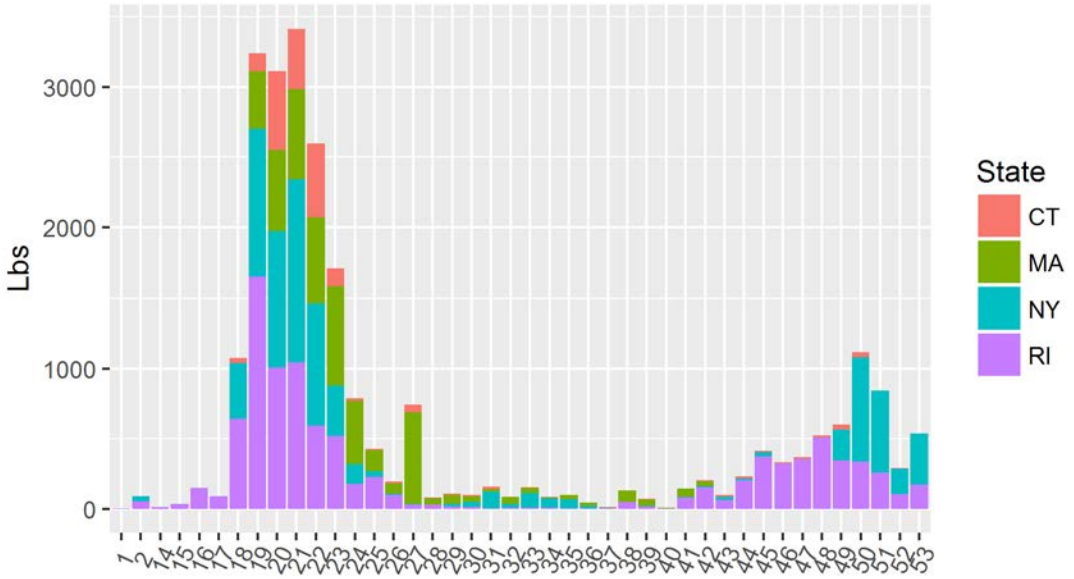


Figure 6: Pounds of winter flounder landed in 2015 by week and state. The x-axis represents each week in a calendar year. NJ data was omitted due to confidentiality rules.

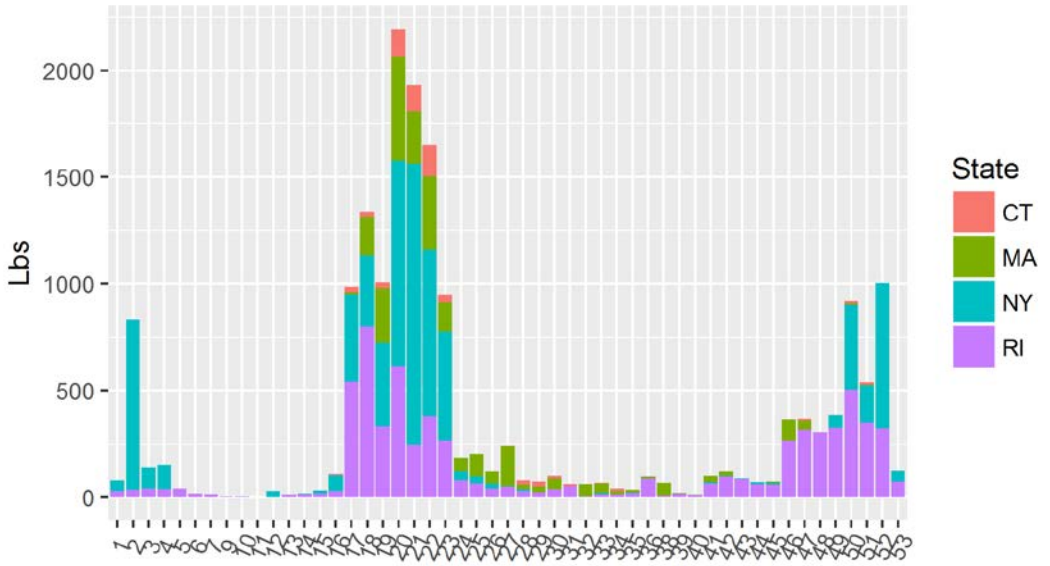


Figure 7: Pounds of winter flounder landed in 2016 by week and state. The x-axis represents each week in a calendar year. NJ data was omitted due to confidentiality rules.

Trends in individual states were also explored to determine if fishing behaviors or activities differ throughout the SNE/MA stock (Figures 8-11). Connecticut and New York show bimodal patterns in which there are a number of trips which landed very few winter flounder and a number of trips which harvested at, or near, the 50 lb trip limit. A large proportion of trips in Massachusetts state waters harvested 50 lb of winter flounder. These clusters of trips near the 50 lb trip limit may indicate regulatory discarding in the fishery. Rhode Island did not appear to have this bimodal distribution, with the majority of trips in 2016 landing less than 20 lb of winter flounder. The figures also suggest that there may be issues with non-compliance in the fishery as there were several trips which exceeded the 50 lb trip limit. The distribution of landings for New Jersey cannot be shown due to confidentiality rules.

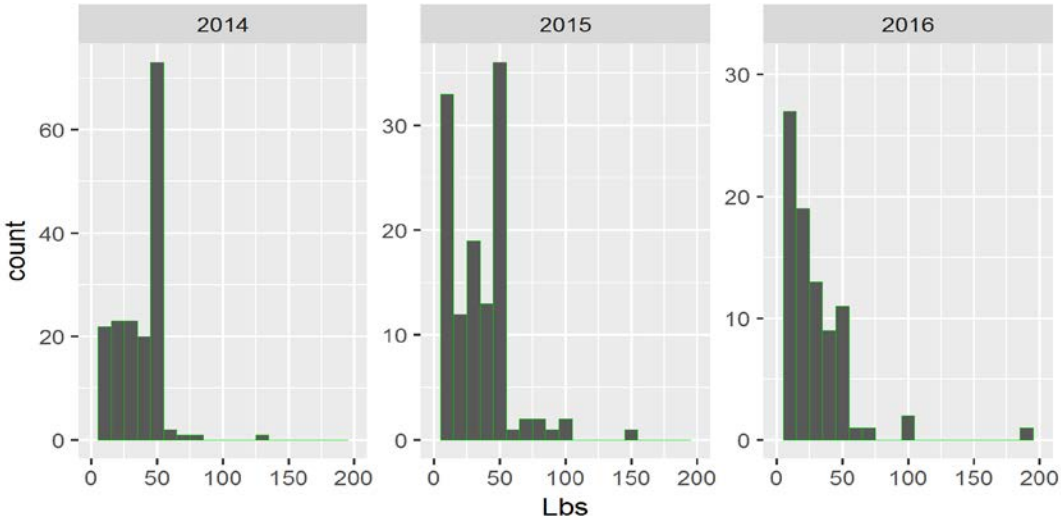


Figure 8: Distribution of catch per trip by gear types in the Massachusetts state waters winter flounder fishery.

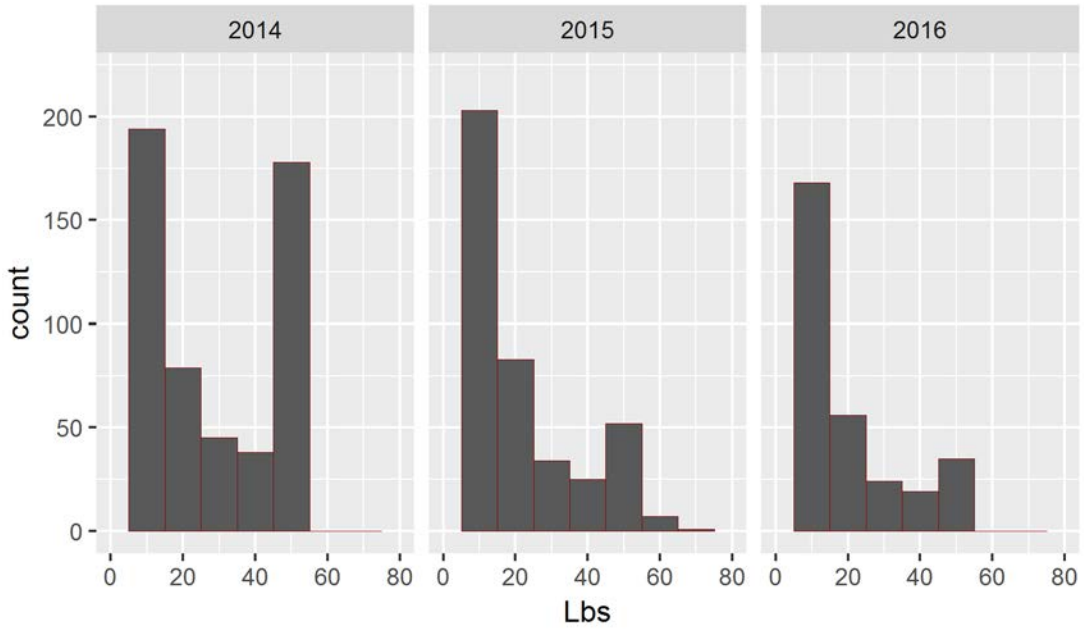


Figure 9: Distribution of catch per trip by gear types in the Rhode Island state waters winter flounder fishery.

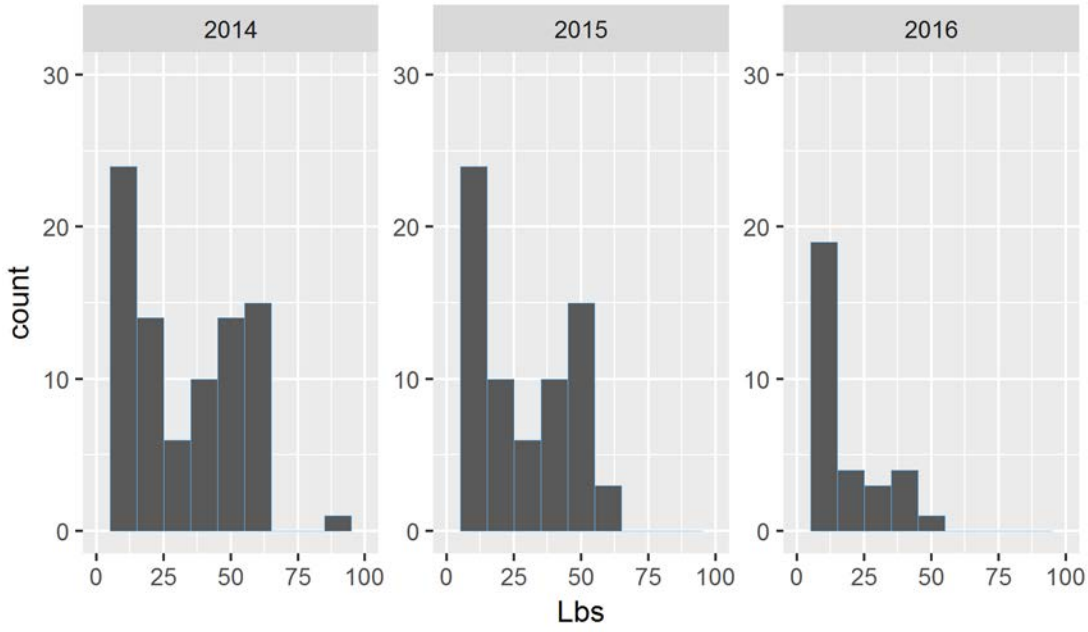


Figure 10: Distribution of catch per trip by gear types in the Connecticut state waters winter flounder fishery.

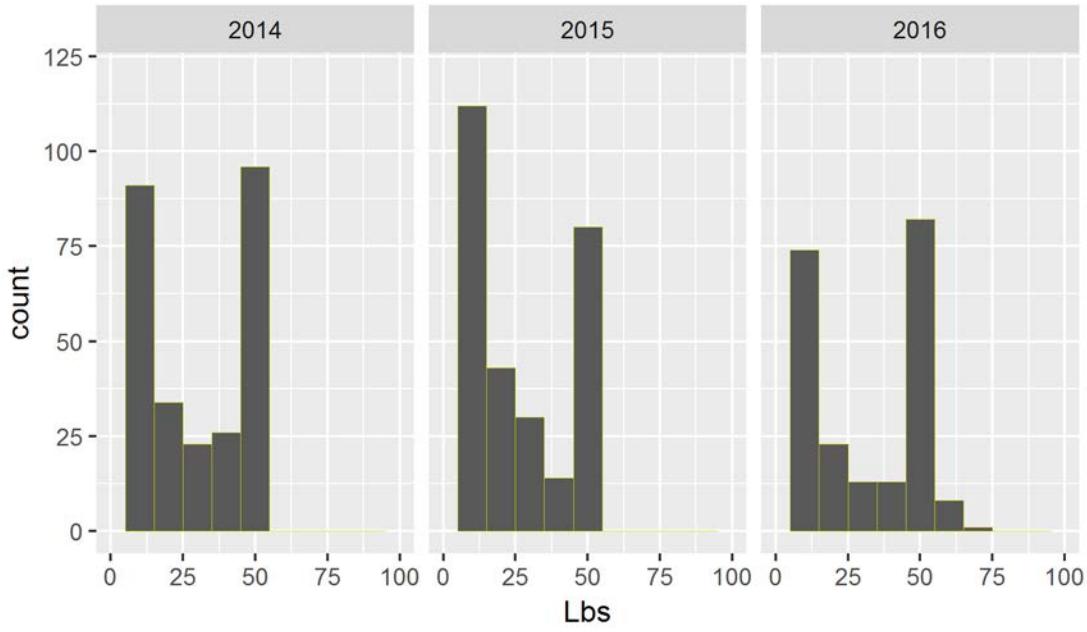


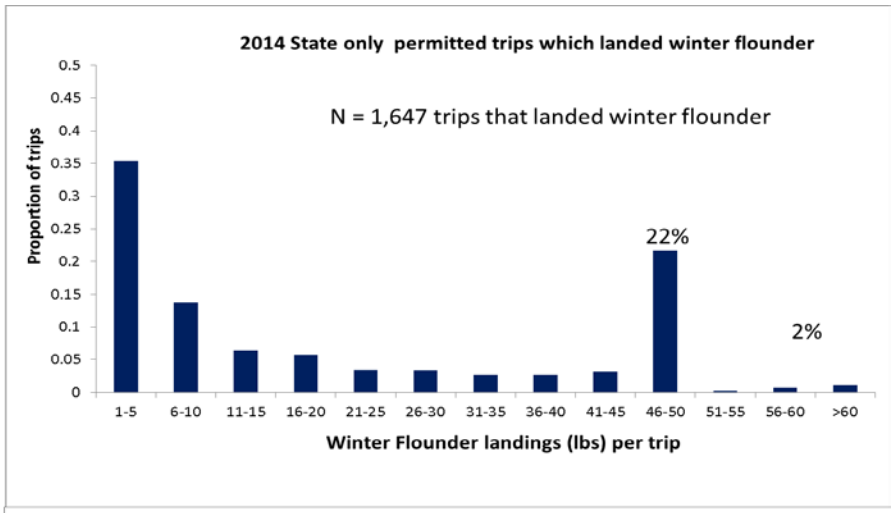
Figure 11: Distribution of catch per trip by gear types in the New York state waters winter flounder fishery.

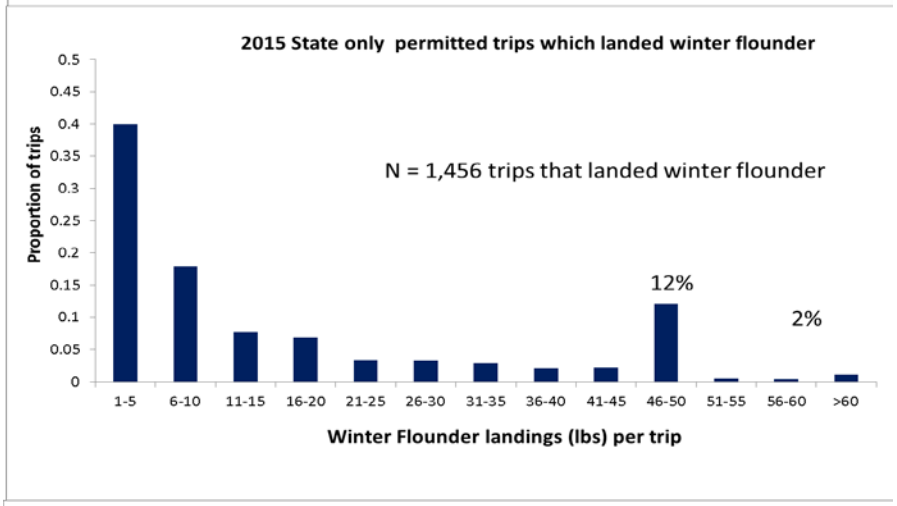
Directed Fishing Behavior on Winter Flounder

Next, the TC investigated current targeting behavior for state permitted fishermen on the SNE/MA winter flounder fishery (all states and gears combined). Figure 12 shows the distribution of winter flounder landings per trip, in pounds, for trips from all states and months. In 2014, 22% of trips were at, or near, the trip limit (46-50 lbs). More recently (2015-2016), only 10% of trips were at or near the trip limit. Again, it is these trips which may be experiencing regulatory discarding due to the low trip limit. In addition, roughly 2% of trips were above the trip limit, suggesting some issues with compliance in the fishery. A similar analysis was conducted using data just from the months of April, May, June, November, and December. This was in response to one of the management options considered in the Rhode Island proposal. While Figures 5-7 do show that the majority of landings occur in these months, there was only a slight increase in the number of trips which were at, or near, the 50 lb trip limit (26% in 2014; 15% in 2015; and 11% in 2016). Given the trends were not different, a separate figure is not included.

The TC also investigated the proportion to which winter flounder contributed to total landings on a trip. Figure 13 shows the analysis for trips from all months and states. Overall, relatively few trips appear to be exclusively directing on winter flounder. Moreover, in 2014 and 2016 less than 7% of trips were comprised of 90+% winter flounder. This decreased in 2015 to just 2%. For the vast majority of trips (roughly 70%), winter flounder comprised less than 10% of total catch. Again, the analysis was replicated for the months of April, May, June, November, and December; however, results did not significantly vary from the analysis of all months.

When considering Figures 12 and 13 in conjunction, it can be concluded that, at present, there is little directed fishing effort on winter flounder in the SNE/MA stock by state-waters fishermen. This means that the 50 lb trip limit is achieving its stated goal of solely accounting for bycatch.





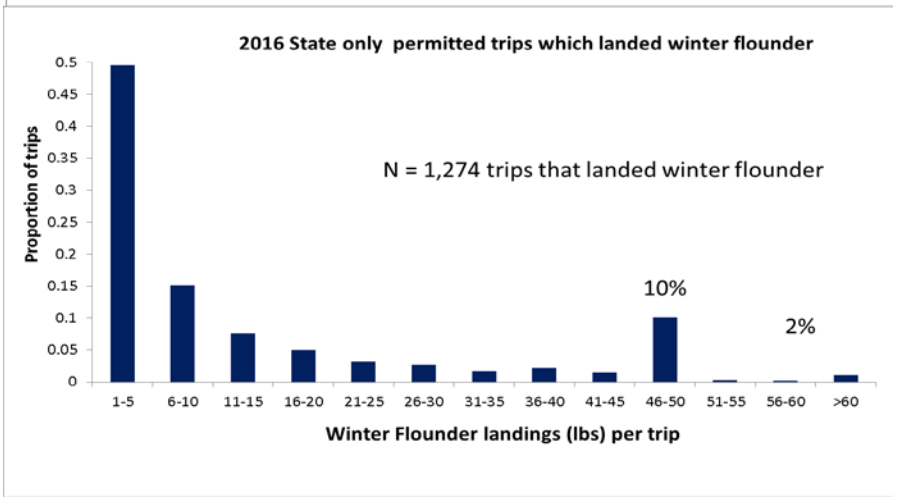


Figure 11: Winter flounder landings, in pounds, per trip for all months and all states (2014-2016).

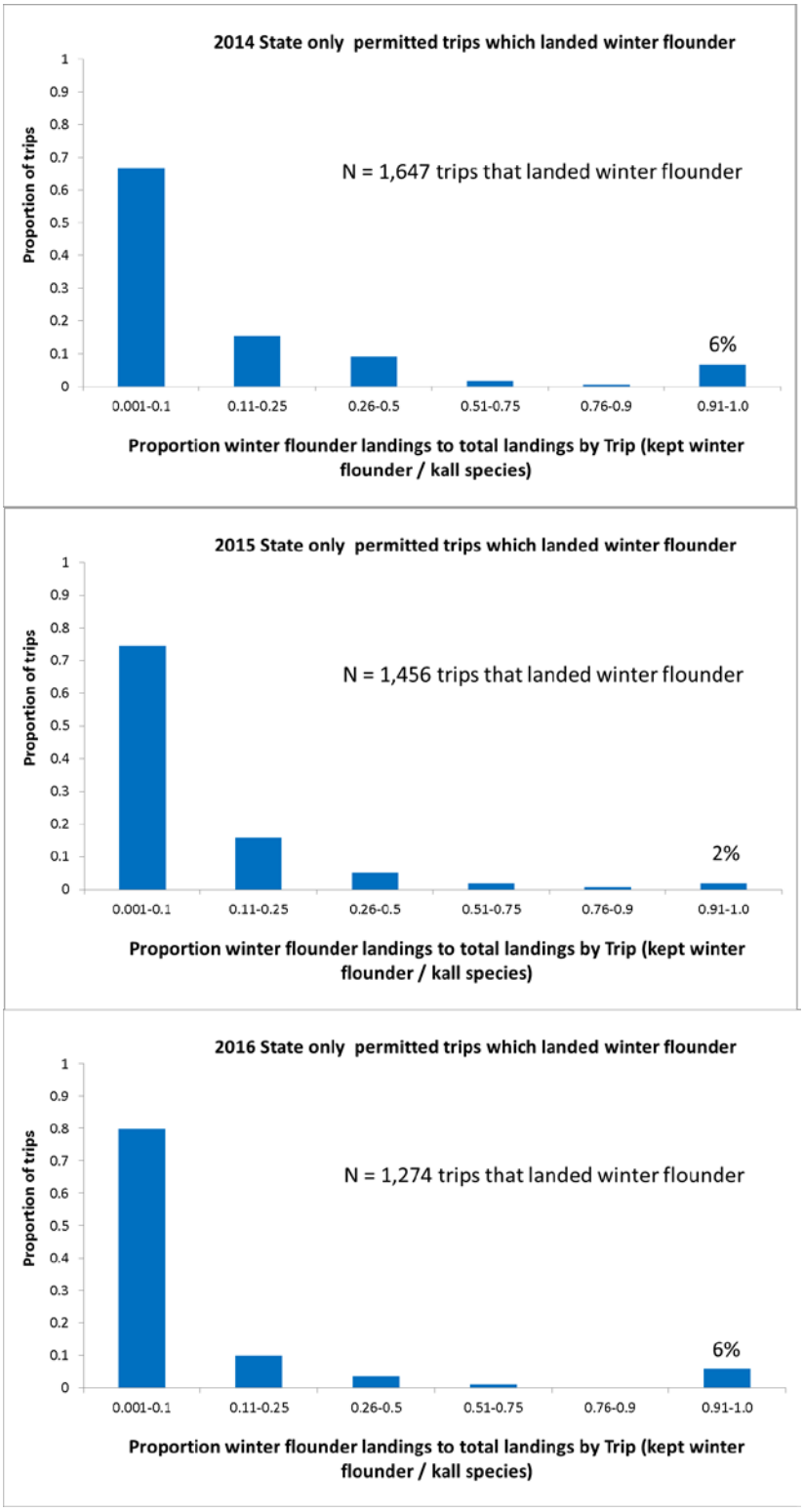


Figure 12: Proportion of winter flounder landings to total landings by trip (2014-2016). Analysis includes data from all months and all SNE/MA states.

Projection Analysis

Given the Rhode Island proposal suggests changes to the regulations, the TC attempted to predict changes in fishermen behavior under aggregate trip limits using projections. There were two primary projections considered in the analysis, based off of the Rhode Island proposal:

1. A 250 lb per week trip limit.
2. A 350 lb per week trip limit between April-June and November-December. During all other months there is a 50 lb per day trip limit.

For each of the above projections, two scenarios were considered in an attempt to project how harvesters may respond to the aggregate trip limit.

1. Each harvester lands the full aggregate limit (either 250 lb or 350 lb) in a given week.
2. Harvesters who landed greater than 50 lb in a given week will land the full aggregate limit (either 250 lb or 350 lb) per week. Harvesters who less than 50 lb in a given week will land 50 lb per week.

The calculations were based on pooling all of the 2014 -2016 states data by year and breaking the number of participants, trips, and pounds of winter flounder caught by participant/trip into week sized bins. For scenario 1, projections were then calculated by multiplying each participant in a given week by the appropriate possession limit for the week and summing. For scenario 2, participants were grouped into two tiers, those that landed > 50 lb in a week and those that landed < 50 lb in a given week. The projections were then calculated by multiplying each > 50 tier participant by the appropriate aggregate limit for the week and the < 50 tier participants by 50 lbs.

The projection values of annual landings are found in Tables 1 and 2. For scenario one (250 lb/ week year round) the average projections ranged between 164,000 lb (74.4 mt) and 66,800 lb (30.3 mt). For scenario two (350 lb/week during spring and late fall, 50 lb/day all other times) the average projections ranged between 162,100 lb (73.5 mt) and 76,900 lb (34.9 mt). The projections are a prediction of fishing behavior and are intended to provide an upper bounds to potential annual landings. The projections and the actual winter flounder landings for each year, as well as the average of 2014-2016, are plotted in Figures 13-20.

Table 1: Projection of annual winter flounder landings (in pounds) based on a 250 lb/week aggregate possession limit for the entire year.

	2014	**2015**	**2016**	**Average**
Scenario 1	175,000	156,250	145,500	164,000
Scenario 2	74,850	61,200	49,500	66,800
Actual Landings	34,822	24,550	17,812	25,749

Table 2: Projection of annual winter flounder landings based on a 350 lb/week aggregate possession limit in the spring and late fall and a 50 lb/day possession limit for the rest of the year.

	2014	2015	2016	Average
Scenario 1	176,000	155,150	144,300	162,100
Scenario 2	90,500	72,600	57,000	76,900
Actual Landings	34,822	24,550	17,812	25,749

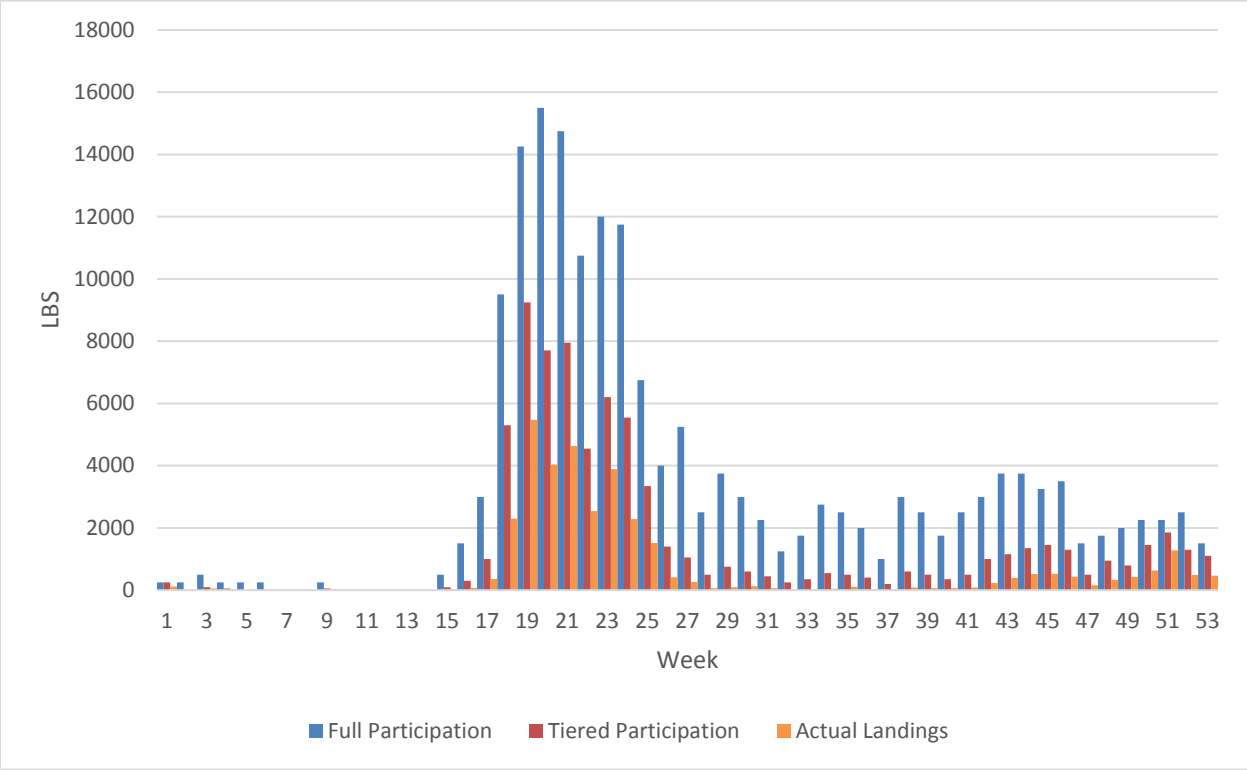


Figure 13: Projection of weekly landings based on a 250 lb/week aggregate possession limit in 2014. Project is plotted with weekly winter flounder landings in 2014.

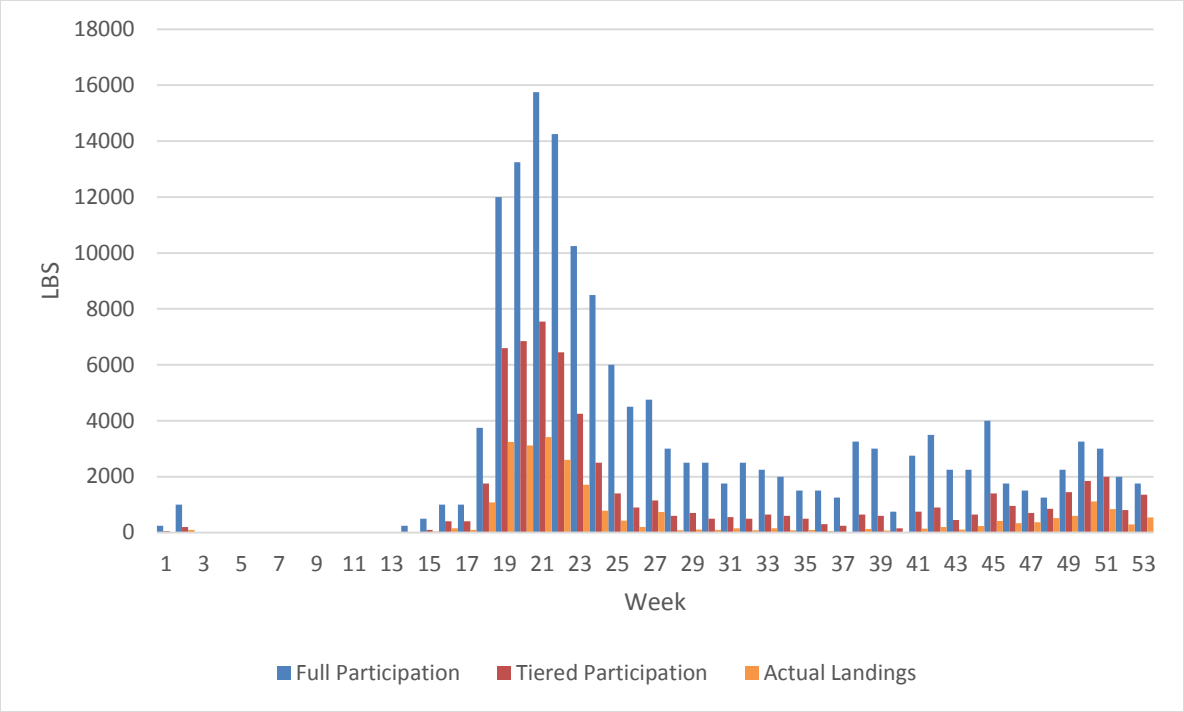


Figure 14: Projection of weekly landings based on a 250 lb/week aggregate possession limit in 2015. Projection is plotted with weekly winter flounder landings in 2015.

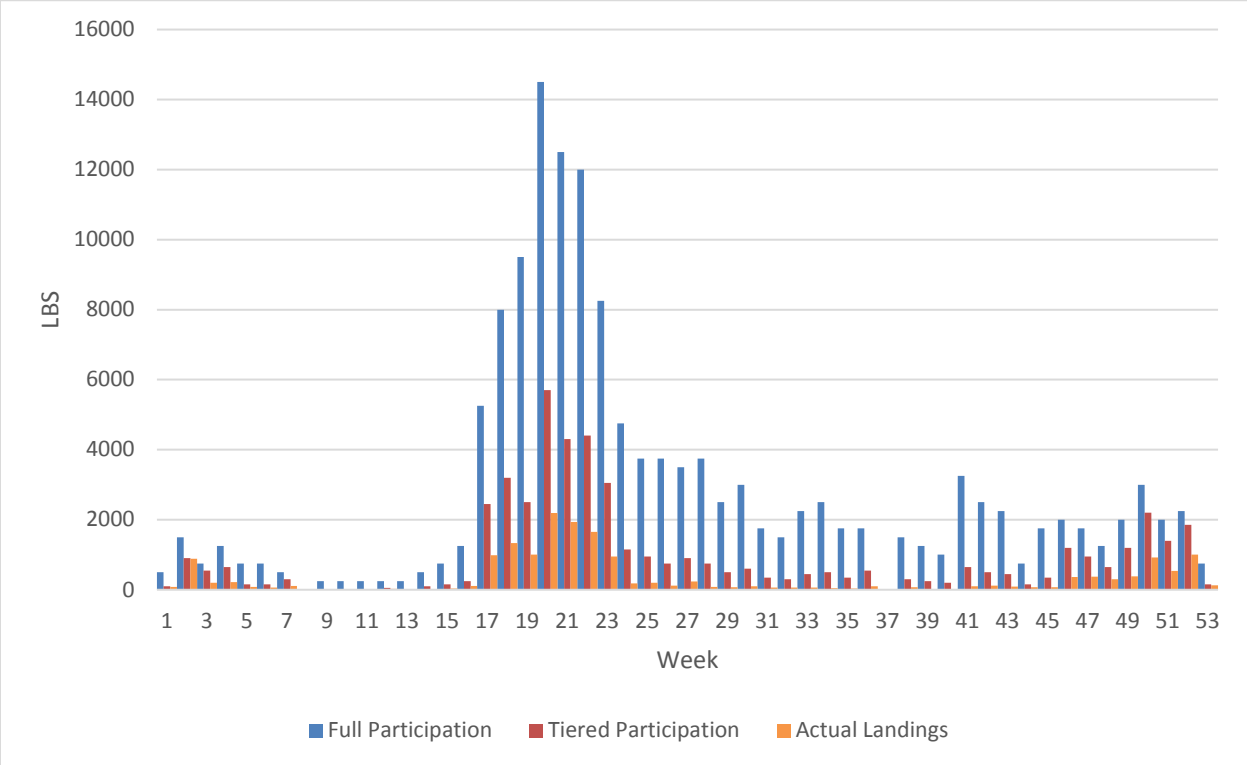


Figure 15: Projection of weekly landings based on a 250 lb/week aggregate possession limit in 2016. Projection is plotted with weekly winter flounder landings in 2016.

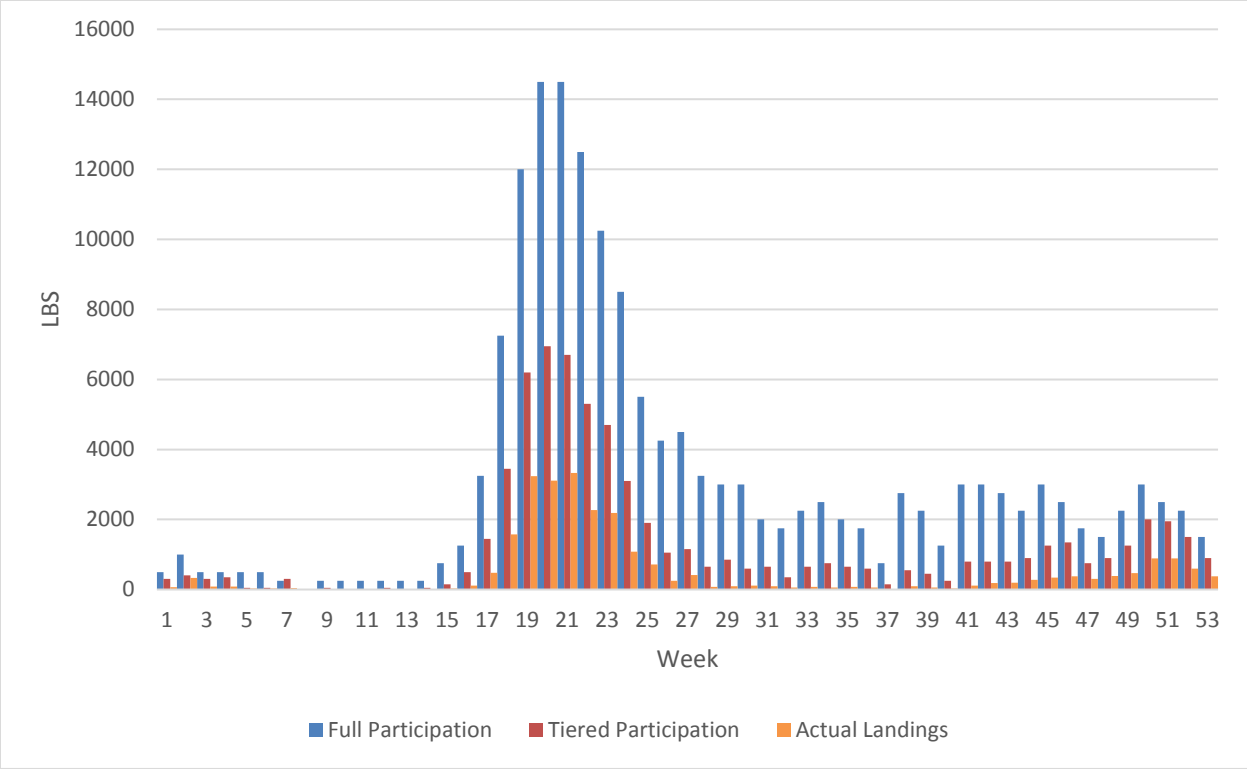


Figure 16: Projection of weekly landings based on a 250 lb/week aggregate possession limit averaged over 2014-2016. Projection is plotted with average weekly winter flounder landings for 2014-2016.

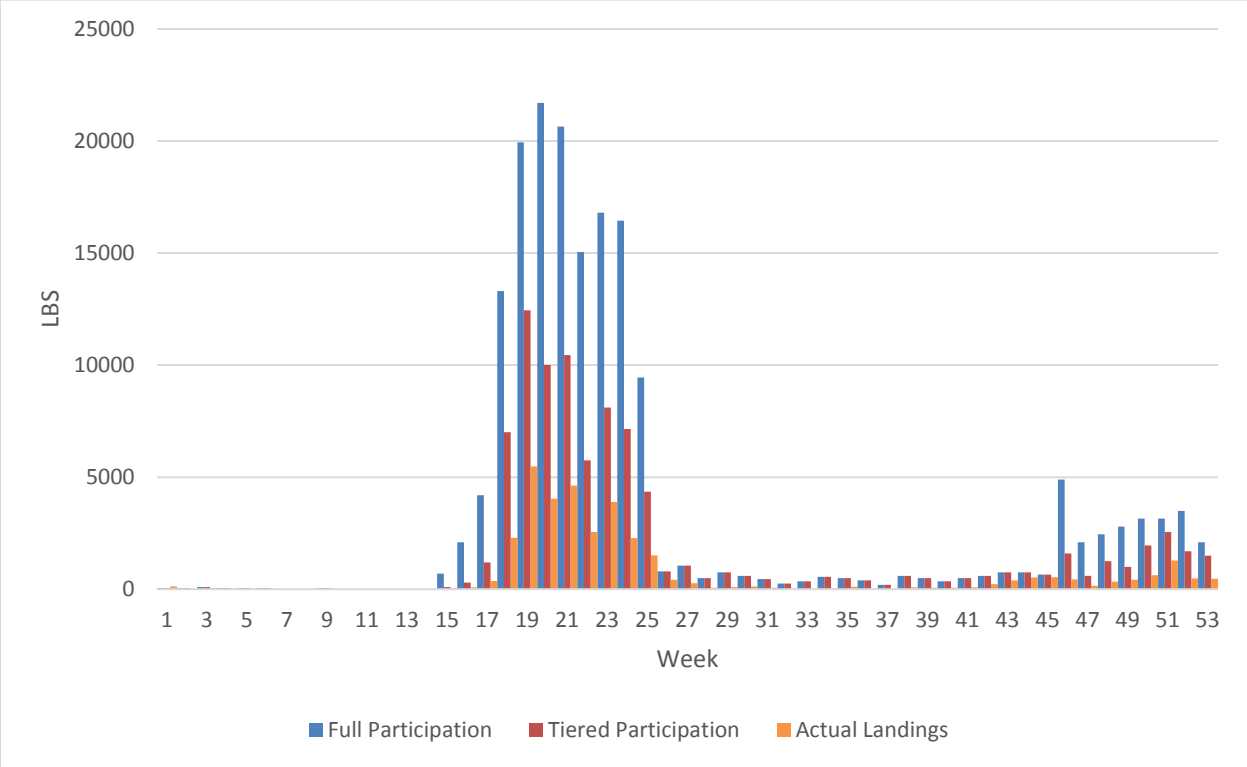


Figure 17: Projection of weekly landings based on a spring and late fall 350 lb/week aggregate possession limit in 2014. Projection is plotted with weekly winter flounder landings in 2014.

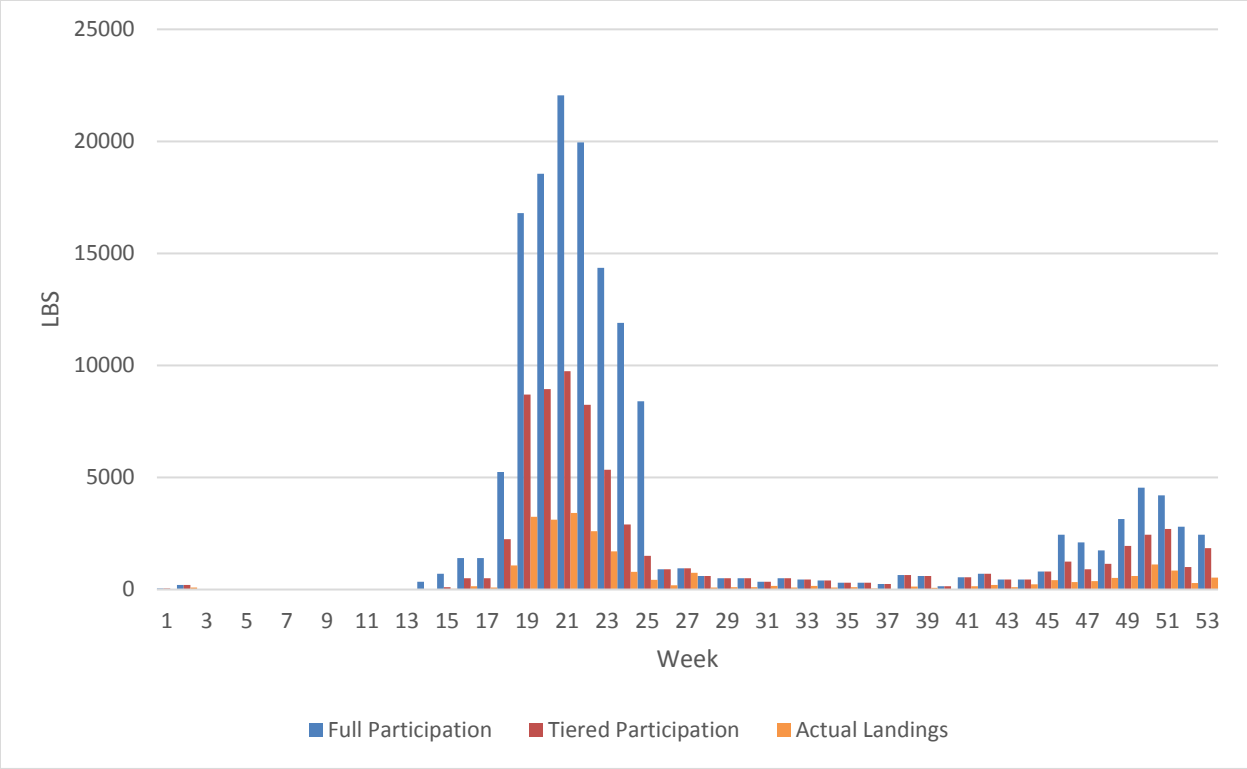


Figure 18: Projection of weekly landings based on a spring and late fall 350 lb/week aggregate possession limit in 2015. Projection is plotted with weekly winter flounder landings in 2015.

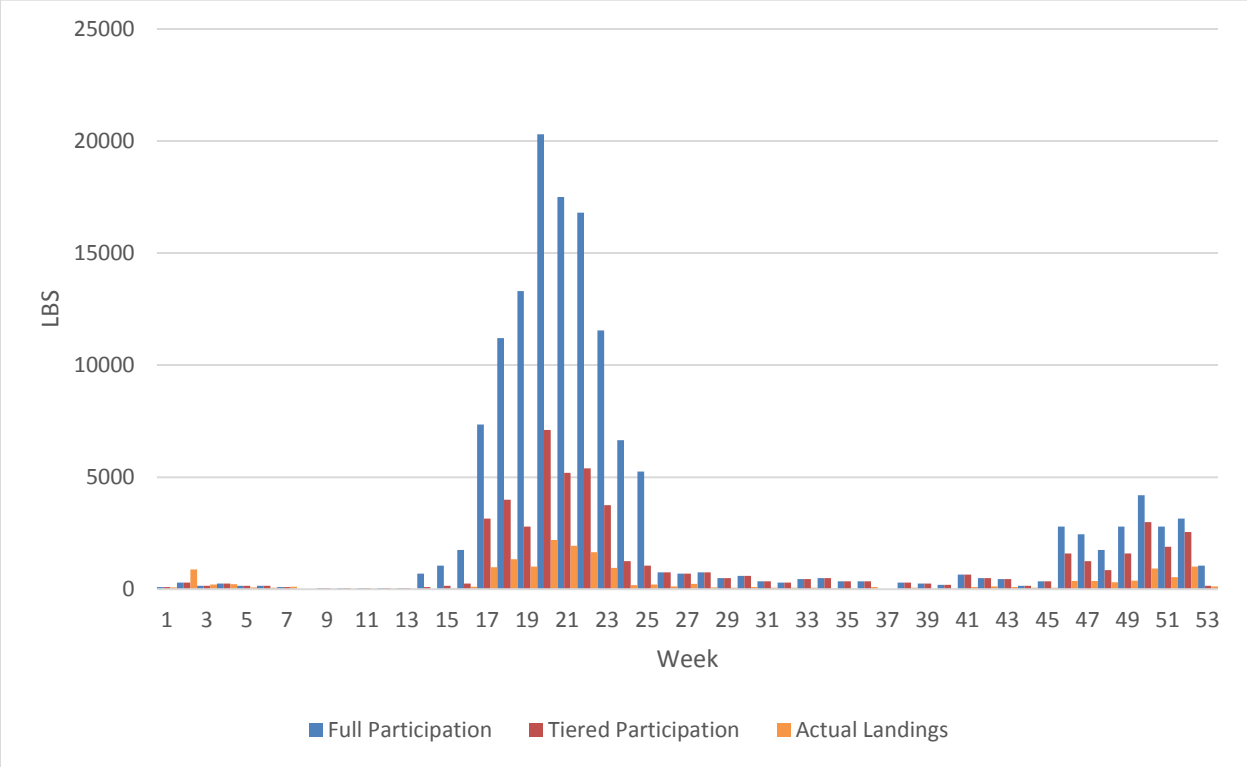


Figure 19: Projection of weekly landings based on a spring and late fall 350 lb/week aggregate possession limit in 2016. Projection is plotted with weekly winter flounder landings in 2016.

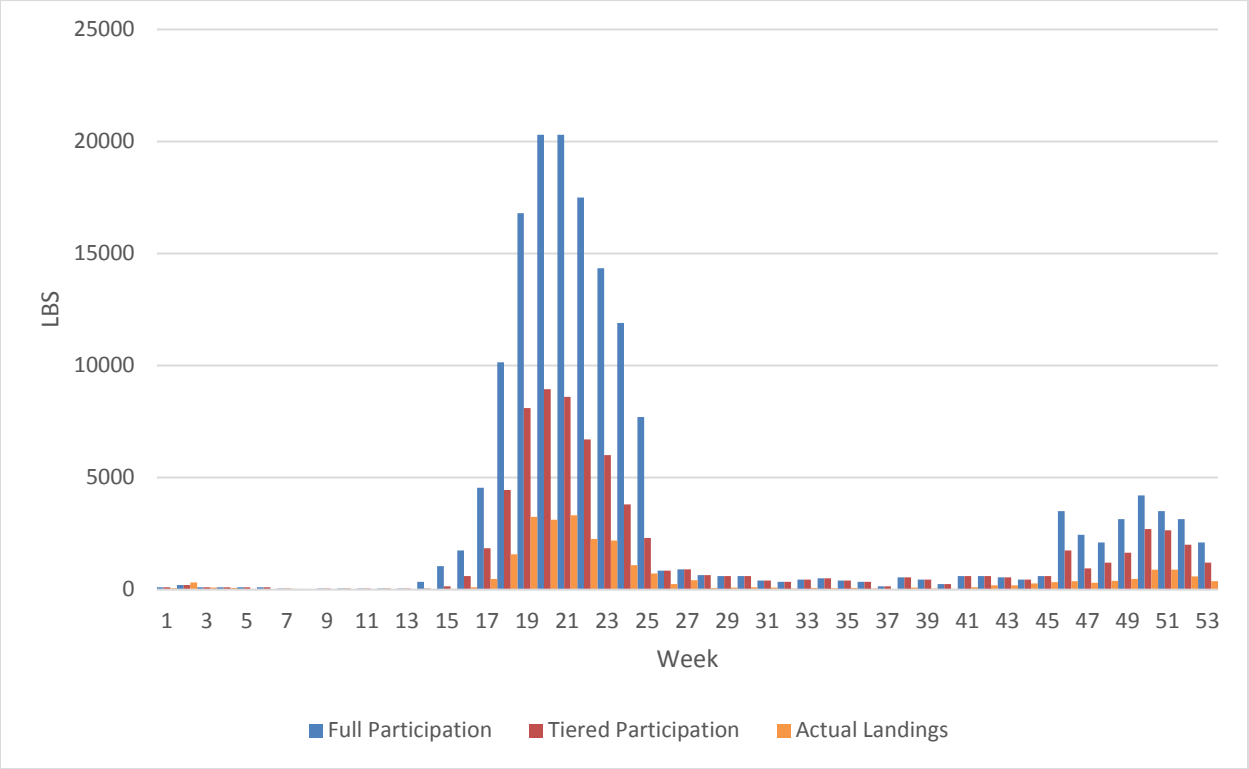


Figure 20: Projection of weekly landings based on a spring and late fall 350 lb/week aggregate possession limit averaged over 2014-2016. Projection is plotted with average weekly winter flounder landings for 2014-2016.

Discussion

When considering the Rhode Island proposal, there are several questions for the Board to consider. Will fishermen targeting behavior change? Will state waters landings increase? Will this lead to overfishing? Will the amount of fish discarded change?

Based off of the projections and current low levels of targeting behavior, the TC does believe that the behavior of state-water fishermen will change and landings will increase under an aggregate weekly limit. In fact, even under projection scenario 2 in which fishermen who currently land less than 50 lb per week are assumed to land 50 lb per week (the more conservative of the two projection scenarios), it is predicted that landings could significantly increase. Whether this expected increase in landings will lead to overfishing is hard to predict. The 2017 operational assessment suggests that overfishing is presently not occurring; however the stock is near record low spawning stock biomass with little evidence of rebuilding.

The influence of an aggregate weekly trip limit on discards is also hard to predict. If fishermen behavior changes and there is greater incentive to catch the full trip limit, there will likely be more trips at or near the aggregate weekly limit. This may perpetuate current regulatory discarding.

When considering an aggregate weekly limit, there are several unintended consequences that may arise which the TC raises for Board consideration.

- An aggregate weekly limit may result in increased fishing by federally permitted boats in states waters. At present, federally permitted boats which fish in state waters are subject to the 50 lb trip limit. Raising this limit may result in greater catch from state waters in the spring and fall. This change in the geographic distribution of effort is outside the scope of the TC's analysis since federal fishery is managed using ACLs, which are designed to prevent overfishing by federally permitted vessels.
- An aggregate weekly limit, could result in increased winter flounder targeting and subsequently higher landings from state water permit holders which would alter the state waters subcomponent for future fishing years. A three-year average of landings from SNE/MA state waters is used to develop a state-waters subcomponent. As a result, if landings increase, the state-waters subcomponent (which is voted on by the NEFMC) could also increase. While this may be to the advantage of state waters fishermen, this could be to the disadvantage of federal fishermen given their ACLs overall will decrease to compensate for the increase in state water landings. In summary, increased targeting of winter founder in state water fisheries due to an aggregate weekly limit could also result in a shift of federal permitted vessels effort into state waters while also reducing the relative quota available to federally permit holders.
- Finally, it is important to note that the winter flounder fishery, for some states, is not a limited entry fishery. Most prominently, Rhode Island does have an open access permit (Non-Restricted Finish Endorsement) which allows for the commercial harvest of winter flounder. Given Rhode Island harvests the majority of winter flounder in the SNE/MA stock, this could result in increased effort and participation in the fishery. An overview of the states permit types are included in Table 3.

Table 3. Permit requirements for states in the SNE/MA winter flounder fishery.

State	Permit Type
MA	A limited access Groundfish Endorsement is required on a commercial fishing permit to harvest winter flounder.
RI	A fisherman can obtain a Non-Restricted Finfish Endorsement Permit, which is open access, to harvest winter flounder. There is also a limited entry Multi-Purpose Fishing Permit which allows for the harvest of winter flounder.
CT	With the exception of hook-and-line fishing, the taking of finfish by all other gear types requires a limited access permit.
NY	The harvest of winter flounder requires a Food Fishing License, which are capped in the state.
NJ	Permits are issued by gear type. Limited entry gears include drift gill nets, staked/anchored gill nets, and lobster/crab/fish pot licenses.