

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR WINTER FLOUNDER
(Pseudopleuronectes americanus)

2012 FISHING YEAR



Prepared by the Plan Review Team

Approved by the Winter Flounder Management
Board February 2014

**Review of the Interstate Fishery Management Plan for Winter
Flounder
2012 Fishing Year**

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I. Status of Fishery Management Plan in Fishing Year 2012

<u>Date of FMP Approval</u>	Original FMP (October 1988)
<u>Amendments</u>	Amendment 1 (November 2005)
<u>Addenda</u>	Addendum I (May 1992) Addendum II (February 1998) Addendum I to Amendment 1 (May 2009)
<u>Management Units</u>	Three stocks units. Atlantic States Marine Fisheries Commission: two inshore stocks in the Gulf of Maine (GOM) and Southern New England/ Mid-Atlantic (SNE-MA). New England Fisheries Management Council: one stock in offshore waters of Georges Bank (GBK)
<u>States with Declared Interest</u>	Maine New Hampshire Massachusetts Rhode Island Connecticut New York New Jersey Delaware
<u>Active Boards/Committees</u>	Winter Flounder Management Board Advisory Panel Technical Committee Plan Review Team

The Atlantic States Marine Fisheries Commission (Commission) authorized development of the first Fishery Management Plan (FMP) for Winter Flounder (*Pleuronectes americanus*) in October 1988. The purpose of the plan was to: 1) address management of inshore stocks of winter flounder; and 2) prominently consider habitat and environmental quality as factors affecting the condition of the resource. The FMP includes states from Maine through Delaware, although Delaware has been granted *de minimis* status (habitat regulations are applicable, but fishery management is not required).

The Commission manages inshore winter flounder as two stocks: the Gulf of Maine stock in waters north of Cape Cod, and the Southern New England/Mid-Atlantic stock in waters south of Cape Cod to the Delaware-Maryland border. The decision to consider only inshore stocks of winter flounder was based upon the Commission's focus on fisheries in state waters, and the differences in biological characteristics from the offshore stock in Georges Bank, which is managed by the New England Fisheries Management Council (Council). Although a large percentage of landings are presently taken from federal waters, this species migrates inshore every winter to spawn. Increased fishing mortality on spawning populations in state waters will have a direct impact on the entire GOM and SNE/MA stock complexes.

The original FMP and Addendum I called for reductions in fishing mortality on winter flounder. It allowed states the flexibility to achieve those reductions based on the life history characteristics of the particular stocks inhabiting each region. Implementation of the plan required the interaction and cooperation between state fishery management agencies, National Marine Fisheries Service, the Council, and the Commission.

Although all states submitted plans that were approved by the Winter Flounder Management Board (Board), results from a 1995 stock assessment concluded that none of the states achieved a fishing mortality rate corresponding to F30. Subsequent analyses in early January 1997 indicated that fishing mortality on a coastwide basis was slightly higher than the F30 target for the SNE/MA stock complex. Fishing mortality in the GOM stock was presumed to be higher and the spawning stock biomass at a low level, indicating that the GOM unit might be in greater need of rebuilding than the SNE/MA unit.

In February 1998, the Board approved Addendum II to the FMP. Addendum II adjusted the implementation schedule for management measures by the participating states and called for plans to reach the target fishing mortality goal for rebuilding (F₄₀).

Amendment 1 (2005)

In May 1999, the Board acknowledged that it was necessary to update the Interstate FMP for Inshore Stocks of Winter Flounder through an amendment. The original plan and addenda did not prove successful in rebuilding inshore winter flounder populations. The FMP also needed an update to reflect the goals and objectives of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA), which was established in 1993, after the original FMP was approved. The ACFCMA governs preparation and adoption of interstate fishery management plans to provide for the conservation of coastal fishery resources, and requires states to implement and enforce FMPs. The Board further noted that an upcoming stock assessment would likely provide new information on the status of winter flounder stock complexes. After the assessment was completed in late 2002, the Commission began development of Amendment 1 in February 2003.

Amendment 1 to the Interstate FMP for Inshore Stocks of Winter Flounder, approved in November 2005, replaced all previous Commission management plans (see Section V). It focused on joint management of winter flounder between the Commission and Council, and was designed to rebuild and maintain spawning stock biomass at or near target biomass levels. In addition, Amendment 1 prioritized restoration and maintenance of essential winter flounder habitat. Amendment 1 established the following goals and objectives:

Goals

- To promote stock rebuilding and management of the winter flounder fishery in a manner that is biologically, economically, socially, and ecologically sound.
- To promote rebuilding of the inshore and estuarine component of the winter flounder stock.

Objectives

- 1) Manage the fishing mortality rates for the Gulf of Maine and Southern New

England/Mid-Atlantic Stocks to rebuild the stocks and provide adequate spawning potential to sustain long-term abundance of the winter flounder populations.

- 2) Manage the winter flounder stocks under an ASMFC rebuilding plan designed to rebuild and then maintain the spawning stock biomass at or near the target biomass levels and restrict fishing mortality to rates below the threshold.
- 3) Establish an interstate management program that complements the management system for federal waters.
- 4) Foster a management program for restoring and maintaining essential winter flounder habitat.
- 5) Establish research priorities that will further refine the winter flounder management program to maximize the biological, social, and economic benefits derived from the winter flounder population.
- 6) Restore the winter flounder fishery so that inshore recreational and commercial fishermen can access it throughout its historical range and at the historic age structure.

Addendum I to Amendment 1 (2009)

Addendum I was approved in May 2009, following the 2008 GARM III stock assessment. GARM III indicated that the SNE/MA spawning stock biomass was only 9% of the target and the GOM stock was likely to be overfished and experiencing overfishing at the time. For the GOM, Addendum I required an 11% reduction in fishing mortality for the recreational sector and a 250 pound possession limit for non-federally permitted commercial fishermen (estimated 31% reduction in harvest). Recreational reductions may be achieved by using possession limits, seasons, or other measures. Commercial measures under the final interim rule were intended to achieve at least an 11% reduction in fishing mortality. For the SNE/MA stock, Addendum I established a two fish recreational bag limit with current size limits and seasons maintained and a 50-pound possession limit for non-federally permitted commercial fishermen. Both measures allow for the consistent application of management measures in state water fisheries and are intended to complement the federal interim rule which prohibits any take of SNE/MA winter flounder from offshore waters (an estimated 62% reduction in fishing mortality). The Board set bag and possession limits that are low enough to discourage directed fishing, but allow fishermen to keep their winter flounder bycatch. The two fish recreational bag limit was estimated to achieve approximately a 50% reduction in harvest, while the 50-pound commercial possession limit is estimated to achieve approximately a 65% reduction in harvest.

Addendum II to Amendment 1 (2012)

In response to updated stock status information and federal action to substantially increase the GOM winter flounder state waters annual catch limit subcomponent, the Board initiated Addendum II to Amendment 1 of the Winter Flounder Interstate FMP. This Addendum changes commercial and recreational management measures for the state waters component of the GOM stock only. Specifically, it increases the maximum possession limit for non-federally permitted commercial vessels to 500 pounds. It also removes the 11% reduction in F for the recreational fishery and allows states the option to open their recreational fishing season year-round.

Addendum III to Amendment 1 (2013)

In August 2012, the Winter Flounder Management Board initiated the development of an

addendum to the Interstate Fishery Management Plan (FMP) for winter flounder to consider changing commercial trip limits and recreational measures through an annual specification process for the Gulf of Maine and Southern New England/Mid-Atlantic winter flounder fisheries. The Board also tasked the Plan Development Team to propose in- and post-season harvest control measures for the winter flounder fishery.

II. Status of Stocks

The most recent peer reviewed benchmark stock assessment for all three winter flounder stocks was the 52nd Northeast Regional Stock Assessment Workshop (SAW52), which convened in Woods Hole, MA in June 2011. It included data through 2010. The Stock Assessment Review Committee (SARC) determined that the SNE/MA stock, with a scientifically sound assessment, was overfished and not experiencing overfishing in 2010. The GOM stock was not experiencing overfishing in 2010; however, the overfished status remained unknown. Following a scientifically credible approach, the offshore Georges Bank (GBK) stock was found to be not overfished and not undergoing overfishing in 2010. The previous stock assessment for winter flounder was the Groundfish Assessment Review Meeting (GARM) III in 2008, which was not accepted.

Gulf of Maine

SAW52 concluded that **GOM winter flounder was not experiencing overfishing, while the overfished status remained unknown.** The overfishing definition was determined by comparing the 2010 catch (195 mt) to a survey-based swept area estimate of biomass for winter flounder larger than 30 cm in length (6,341 mt). The exploitation rate was estimated to be 0.03 in 2010, which is lower than the threshold exploitation rate of 0.23. This $F_{\text{Threshold}}$ was derived by using $F_{40\%}$ (0.31) as a proxy for F_{MSY} .

It was not possible to estimate the stock biomass and overfished status for GOM winter flounder. Since GARM III was not accepted, the most recent biological reference points came from the SARC36 stock assessment in 2003. It was not appropriate to compare the 2010 exploitation rate and stock size estimates to these biological reference points. The 2011 stock assessment used new population models developed in ADAPT VPA, SCALE, and Age-structured Assessment Program (ASAP). These models had difficulty with the conflicting data trends within the assessment, specifically, the large decrease in catch over the time series with very little change in the indices or age structure in catch and surveys. Consequently, an analytical assessment model was not accepted, and biomass-based reference points or proxies could not be estimated.

Southern New England/Mid-Atlantic

SAW52 determined that the **SNE/MA winter flounder stock was overfished, but not experiencing overfishing.** Biological reference points were estimated from an external stock-recruitment model and proxy BRPs are based on 40% MSY.

$SSB_{\text{Target}} = B_{\text{MSY}}$	43,661 mt	96,256,028 lbs
$SSB_{\text{Threshold}} = \frac{1}{2} SSB_{\text{MSY}}$	21,831 mt	48,129,116 lbs
MSY	11,728 mt	25,855,814 lbs
MSY _{40%}	8,903 mt	19,628,000 lbs
$F_{\text{MSY}} = F_{\text{Threshold}}$	0.290	

The 2010 spawning stock biomass was estimated to be 15,599,891 lbs (7,076 mt), which equates to 16% of B_{Target} and 32% of $B_{\text{Threshold}}$. Fishing mortality (F) for fully recruited fish at ages 4-5 was estimated to be 0.051, or 18% of $F_{\text{Threshold}}$. The SARC predicted that even with a fishing mortality of 0.000 from 2012-2014, there is less than 1% chance for SSB to rebuild to SSB_{MSY} of 96.26 million pounds (43,661 mt).

The SNE/MA stock's spawning stock biomass peaked in recent history at 44.3 million lbs (20,108 mt) in 1982. Since then, SSB declined to a record low of 8.7 million lbs (3,941 mt) in 1993, but increased to 19.7 million lbs (8,941 mt) in 2000. SSB dropped again in 2005 to 9.9 million lbs (4,505 mt). That year, Amendment 1 was approved. SSB has increased to nearly 15.6 million lbs (7,076 mt) in 2010 (Figure 1).

Recruitment and low reproductive rate are key sources of vulnerability for winter flounder in the SNE/MA complex. Stock-recruit modeling suggests that warm winter temperatures can negatively impact recruitment of SNE/MA winter flounder. Since 1981, the estimated number of age-1 fish has declined from 71.6 million in the 1980 year class to a record low of 7.5 million in the 2001 year class. Estimates for the last decade have been lower than predicted, averaging at 10.6 million fish each year from 2001-2010. Recruitment for the 2009 year class was estimated to be 8.7 million (Figure 2).

III. Status of Assessment Advice

The stock assessment completed at SAW52 for the SNE/MA stock complex was accepted as scientifically sound. For the GOM stock unit, however, biological reference points or proxies could not be estimated by SAW52 or the previous stock assessment at GARM III.

IV. Status of the Fishery

Gulf of Maine

Commercial landings of Gulf of Maine winter flounder have substantially declined since the early 1980s, with recent landings being roughly 5% of harvest levels in the 1980s. From 1964 through the mid-1970s, commercial landings were near 2.2 million lbs (1,000 mt). Productivity

peaked at nearly 6.2 million lbs (2,793 mt) in 1982, and has steadily decreased to a record low of 308,647 lbs (140 mt) in 2010 (Figure 3).

The primary **commercial gear** used to harvest GOM winter flounder is the otter trawl. From 1964 to 1985, otter trawls accounted for an average of 95% of the landings. From 1986 to 2001, an average of 26% of landings were taken by gillnets, while otter trawl catches reduced to an average of 74% of landings. Although taken year-round, winter flounder are more commonly landed during the third quarter of each year for the past decade. **Commercial discard** generally made up a small percentage of the total catch, about 5%. The largest annual total amount of commercial discard was 771,617 lbs (350 mt) in 1982. Similar to the landings, discards have decreased over the time series, reaching the lowest level in 2010 with 8,818 lbs (4 mt). Discard mortality from gillnet, large mesh, and the northern shrimp fishery was estimated to be 50%.

Recreational landings also peaked in 1982, at 6.7 million lbs (3,024 mt). Landings have generally declined; since 1994, annual totals are typically less than 220,462 lbs (100mt) (Figure 4). **Recreational releases** make up a small portion of catch. Over the time series, about 3% of GOM winter flounder have been released by anglers. The discard mortality from recreational fishing for winter flounder was estimated to be 15%.

Southern New England/Mid-Atlantic

Commercial landings of SNE/MA winter flounder generally declined throughout the time series from 1964 to 2010, with periodic peaks and dips. After reaching a historical peak of 26.4 million pounds (11,977 mt) in 1966 and then declining through the 1970s, total U.S. commercial landings again peaked at 24.6 million pounds (11,176 mt) in 1981. After 1981, SNE/MA commercial landings declined to 4.7 million pounds (2,159 mt) in 1994 and then increased to 10.3 million pounds (4,672 mt) in 2001. Commercial landings have generally decreased since the 2001 peak, never exceeding 7 million pounds. Harvest levels fell to the lowest ever in 2010 with 383,604 pounds (174 mt) (Figure 4).

The primary **commercial gear** is the otter trawl that accounts for an average of 98% of landings since 1989. Scallop dredges, handlines, pound nets, fyke nets, and gill nets account for the remaining 2% of total landings. **Commercial discards** peaked in 1985 with 3.3 million pounds (1,534 mt). With the exception of 1997, discards from the commercial fishery have decreased to less than 408,000 pounds (185 mt) each year since 1995. Discard mortality was estimated to be 50%.

Recreational landings of SNE/MA winter flounder peaked in 1984 with 12.1 million pounds (5,510 mt) and substantially declined until reaching an all-time low of 61,729 pounds (28 mt) in 2010 (Figure 4). The principal mode of fishing is private/rental boats, with most recreational landings occurring during January to June. **Discard** from the recreational fishery peaked in 1985 with 507,063 pounds (230 mt), or 718,000 fish. Since 2000, discards have been below 44,000 pounds (20 mt), or less than 100,000 fish. A discard mortality rate of 15% was applied to live discard estimates.

Stockwide

Across all stocks, the winter flounder fisheries are a fraction of their historic productivity. For a recent time series beginning in 1981, when recreational fisheries data is available, both commercial and recreational landings have declined since the early 1980s (Figure 5).

Commercial landings were over 40.3 million lbs in 1981, but just under 5.3 million lbs in 2012, or 13% of the level in 1981. A majority of the landings, averaging 97.6% for the past three years, were taken in Massachusetts waters (Tables 1 and 3). In the most recent years (2011 and 2012), commercial landings increased due to an increase in trip limits allowed by the federal and interstate FMPs through emergency action.

Recreational harvest was 0.1 million lbs in 2012, or less than 1% of the amount caught by anglers in 1982 (16.4 million lbs). In 2012, Massachusetts and New Jersey accounted for the majority of the coastwide recreational winter flounder landings, at 39% and 16%, respectively (Tables 2 and 4).

V. Status of Research and Monitoring

Under Amendment 1 to the Interstate Fishery Management Plan for Winter Flounder, Massachusetts, Rhode Island, New York, and Delaware are required to continue annual surveys of juvenile recruitment to develop an annual juvenile abundance index. Massachusetts, Rhode Island, Connecticut, and New Jersey are required to continue annual surveys to develop an index of spawning stock biomass. These states have conducted the appropriate surveys to meet the research and monitoring needs as required by Amendment 1 (Table 5). State research and monitoring programs are summarized below.

Maine

The MEDMR conducts spring and fall bottom trawl surveys in cooperation with the New Hampshire Fish and Game Division. The Maine-New Hampshire (MENH) Inshore Trawl Survey collects length, weight, maturity stage, and age samples for winter flounder. In 2012, the biomass was 2.5 kg/tow (stratified mean weight) in the spring trawl survey and 3.0 kg./tow in the fall. These numbers are both down from a series high of 4.5 kg./tow in spring 2004 and 6.1 kg./tow in fall 2003. Both indices varied from year to year, with overall flat trends since 2001 and 2000, respectively. Numeric indices show a positive trend since 2000 in both seasons, but stratified mean numbers were down in sampling year 2012.

Maine does not conduct fishery-dependent monitoring for winter flounder, but monitors the recreational fishery via MRIP and commercial fishery via NMFS commercial landings data.

New Hampshire

The New Hampshire Fish and Game Department (NHFG) conducts an annual seine survey of juvenile fish in its estuaries from June through November. The survey produces an index of relative abundance for each species encountered using a geometric mean catch per seine haul. The index value (0.57) is an increase from 2010 (0.17) and 2011 (0.20), but remains below the

average of 1.50 since 2000; the index has been highly variable. In addition, NHFG has worked with Maine Department of Marine Resources (MEDMR) since the fall of 2000 to conduct an inshore trawl survey off of Maine and New Hampshire (see Maine's monitoring summary).

NHFG monitors the recreational fishery via MRIP and the commercial fishery via NMFS commercial landings data.

Massachusetts

The Massachusetts Division of Marine Fisheries (MADMF) completed spring and fall bottom trawl surveys covering its state waters. In 2012, the GOM winter flounder biomass was about 10 kg/tow in the spring. The index has a decreasing trend since 1980, from series highs of about 19 kg/tow in the spring. In 2012, the SNE/MA winter flounder biomass was about 2 kg/tow in the spring. The index has a decreasing trend since 1980, from series highs of 18 kg/tow. MADMF also completed its annual young of the year (YOY) winter flounder survey in June 2013 to provide an index for recruitment of the SNE/MA stock. In 2013, the density of young-of-the-year (YOY) winter flounder was about 0.24 (numbers per square meter, stratified mean). Although the YOY index in 2013 was very slightly above the time series median, the time series trend since 1976 is declining with a slight increase since the early 2000s.

MADMF monitors the recreational fishery via MRIP. Commercial vessels without federal permits for groundfish are required to report all landings at trip level.

Rhode Island

Except for the ichthyoplankton survey, which was discontinued in July of 2008, Rhode Island's Division of Fish & Wildlife conducted five studies to monitor juvenile and adult winter flounder in its state waters. The seasonal trawl survey samples 42 fixed and random stations in the spring and fall. The monthly survey samples 13 fixed stations each month. The Narragansett Bay Juvenile Finfish Survey samples 18 stations once a month from June through October. The coastal pond seine survey samples 24 stations in 8 coastal ponds from May through October. During 2012, RIDFW continued working with staff from the EPA Atlantic Ecology Division in Narragansett, RI to sample six stations with fyke nets from January to May in Point Judith and Charlestown ponds. While data from some surveys show a slight increase in abundance of winter flounder in recent years the overall trend for all surveys indicates a declining abundance of this species in Rhode Island waters.

RIDWF monitors the recreational fishery via MRIP and the commercial fishery is monitored via NOAA Fisheries port sampling program.

Connecticut

Winter flounder have been monitored through the Long Island Sound Trawl Survey since 1984. Spring (April, May and June) and Fall surveys (September and October) are conducted each year. The 2012 spring (April-June) index (geometric mean fish/tow) for all ages of winter flounder was 12.02, ranking 28th in the 29 year time series, and the 14th consecutive year below the time series average of 53.07fish/tow. The lowest value in the time series is the

2006 spring index of 7.50fish/tow. The April-May index used to develop abundance indices at age was 15.80fish/tow for all ages, well below the average for the time series was 67.56fish/tow. The index for mature fish ages 4-13 show a similar decline.

Connecticut DEEP monitors the recreational fishery via MRIP and the commercial fishery is monitored via NOAA Fisheries port sampling program.

New York

The NYSDEC has been conducting a small mesh trawl survey targeting juvenile finfish since 1987. The weekly survey runs from May through October in Peconic Bay using a small mesh sixteen foot semi-balloon shrimp trawl, 16 randomly selected stations are sampled each week. A total of 144 randomly chosen stations were sampled during June and July 2012 (time series average = 138.2 tows). Environmental data (temperature, salinity, dissolved oxygen), turbidity, and depth were recorded at each station at both the surface and bottom. A total of 125 winter flounder were caught in June and July of 2012, up from the survey's low in 2002 when only 83 winter flounder were captured, but considerably lower than the survey max (25,782) in 1992 and the survey average of 3,541 fish. The lengths ranged from a minimum of 29 mm to a maximum of 335 mm for 2012 and the length-frequency distribution indicates several year classes are present in the bay at the time of sampling. The winter flounder catch per tow (CPUE, expressed as an arithmetic mean) in June & July 2012 was 0.87, the second lowest value in the time series (figure below, min.0.6 in 2002, max 181.6 in 1992, avg. 23.0). The proportion of YOY in the 2012 catch is lower than the previous year. The survey CPUE has been below the time series average consistently since 2000.

New York does not conduct fishery-dependent monitoring.

New Jersey

The Bureau of Marine Fisheries has conducted an Ocean Trawl program in nearshore ocean waters since 1988. Winter flounder are most abundant during April, and data from this cruise have been used to develop an index of abundance for winter flounder in New Jersey waters. For each tow, information is collected on total number, total weight, and individual lengths. Biomass indices for 2012 were an arithmetic mean of 5.04 kg/tow, (slightly higher than 2011's index of 4.91) and a geometric mean of 1.74 kg/tow (slightly lower than 2011's index of 1.90.) As with the numeric indices, both biomass indices were lower than their respective time series averages of 5.62 and 2.35. Preliminary results from the 2013 April survey cruise indicated a sharp decrease for all the indices, yielding time series lows for the numeric means: 6.90 arithmetic and 2.20 geometric. The biomass indices were the lowest in the last 21 years of the survey: 3.68 kg/tow arithmetic and 1.38 kg/tow geometric. Survey results have shown a downward trend in abundance for the last six years, although the time series trend is relatively flat despite the variance from year to year. Beginning in 1993 for the Ocean Trawl survey and in 1995 for the Spawning Survey, scales or otoliths have been collected in order to develop annual age-length keys and catch at age estimates.

New Jersey does not conduct fishery-dependent monitoring.

Delaware

Delaware was approved for *de minimis* status for 2012 and does not conduct biological monitoring of winter flounder. Amendment 1 provides that states that are granted *de minimis* status are exempted from biological monitoring/sub-sampling activities for the sector for which *de minimis* has been granted.

VI. Status of Management Measures and Issues

Amendment 1

Winter flounder is managed under Amendment I to the Interstate Fishery Management Plan for Inshore Stocks of Winter Flounder, implemented in November 2005 to completely replace all previous management plans for winter flounder in state waters. Amendment I required a minimum size limit of 12 inches for commercial and recreational fisheries for both GOM and SNE/MA stock units. Recreational creel limits were ten (10) fish in the SNE/MA stock area and eight (8) fish in the GOM. There are no required closed recreational seasons in the GOM, while there must be a closed season of 20 days during March and April in SNE/MA. The 60-day open season for recreational winter flounder fishing can be split into no more than 2 blocks. States must implement a minimum size of 6.5 inches square or diamond mesh for the cod-end in both GOM and SNE/MA inshore waters. Additionally, a 100-pound trip limit is required if smaller mesh is being used in the SNE/MA. This “mesh trigger” is intended for the landing of a small amount of winter flounder as bycatch in small-mesh fisheries.

Addendum I to Amendment 1

Implemented in June 2009, Addendum I aimed to reduce fishing mortality and rebuild the GOM and SNE/MA stocks. This addendum does not rescind the management required by Amendment 1, and states are required to continue implementing all measures in Addendum I and Amendment 1. These regulations only applied to non-federally permitted vessels in state waters.

Gulf of Maine: For the GOM commercial fishery, the maximum possession limit is 250 pounds per vessel. This limit was estimated to reduce 2006-2007 harvest levels by 31% for state water fishing vessels. For the GOM recreational fishery, Addendum I required states to implement regulations to reduce fishing mortality by 11% from the average of 2006-2007 levels. This 11% reduction was estimated to reach F_{MSY} . States were allowed to achieve reductions through possession limits, seasons, or a combination of both, and also had the option to submit conservation equivalency proposals to achieve the necessary reductions through alternative management measures, subject to approval by the Board.

Southern New England/ Mid-Atlantic: Addendum I’s management measures were designed to reach the lowest F rate possible with minimal economic and social impacts and dead discards, and to prevent an influx of effort into state waters. Non-federally permitted commercial vessels may possess a maximum of 50 pounds of winter flounder. This level was estimated to reduce harvest by 65%, and was intended solely to allow for bycatch. Recreational fishermen may possess a maximum of two (2) winter flounder from inshore waters of the SNE/MA stock area.

All winter flounder must be at least 12 inches in length (Section 4.1 of Amendment 1). This bag limit was estimated to reduce harvest by 46%.

De Minimis: Amendment I allowed a state to be granted *de minimis* status if their fishery constitutes less than 1% of the coastwide commercial or recreational landings for the preceding three years for which data are available. A state that qualifies for *de minimis* status based on their commercial landings will qualify for exemptions in the commercial fishery only, and a state that qualifies for *de minimis* based on their recreational landings will qualify for exemptions in their recreational fishery only. States that apply for and are granted *de minimis* status are exempted from biological monitoring/sub-sampling activities for the sector for which *de minimis* has been granted.

Northeast Multispecies Fishery; Gulf of Maine Winter Flounder Catch Limit Revisions

Through emergency action, NOAA Fisheries doubled the catch limit for GOM flounder for the remainder of the 2011 fishing year, and again in 2012. In response to updated stock status information and federal action to substantially increase the GOM winter flounder state waters annual catch limit subcomponent, the Board initiated Addendum II to Amendment 1 of the Winter Flounder Interstate FMP in 2012. This Addendum changes commercial and recreational management measures for the state waters component of the GOM stock only. Specifically, it increases the maximum possession limit for non-federally permitted commercial vessels to 500 pounds. It also removes the 11% reduction in F for the recreational fishery and allows states the option to open their recreational fishing season year-round.

VII. Implementation of FMP Compliance Requirements

State Compliance

For fishing year 2012, all of the states with a declared interest in the management of winter flounder have implemented commercial and recreational regulations that are consistent with ASMFC's Winter Flounder FMP (Tables 5, 6).

Request for *De minimis* Status

Delaware was the only state that requested *de minimis* status for its commercial and recreational fisheries. Harvest levels averaged less than 1% of coastwide landings of winter flounder in both the commercial and recreational fishery for the last three years (2010-2012). **It is the recommendation of the PRT to grant Delaware *de minimus* status for their recreational and commercial fisheries (Tables 1 - 4).**

VIII. Research and Monitoring Recommendations

SAW52 produced new research recommendations based upon reviewed assessments and review panel reports for 2011 SAW52, 2008 GARM III, 2002 SARC 36, and prior assessments.

Coastwide (from 2008 GARM III)

1. Assessment approaches needs to be explored that consider all three Winter Flounder stocks as a stock complex within which there is significant interaction amongst the individual stock components. The Panel also had concerns about the unit stock, not only for this stock, but for all of the Winter Flounder stocks assessed. It recommended an analysis of Winter Flounder as a stock complex, rather than as individual stocks, be undertaken.

Southern New England - Mid-Atlantic

- 1) Update and investigate migration rates between stock and movement patterns. The most recent comprehensive tagging study was completed in the 1960s (Howe and Coates), and a new large scale effort is warranted. Further investigate localized structure/genetics within the stocks.
- 2) Investigate the feasibility of port samplers collecting otoliths from large and lemon sole instead of scales because of problems under-ageing larger fish.
- 3) Investigate use of periodic gonad histology studies as a check to make ensure maturity estimates are accurate, with particular attention to obtaining sufficient samples from the Georges Bank stock. Explore options to conduct periodic maturity staging workshops involving State and NEFSC trawl survey staff.
- 4) Investigate the skipped spawning percentage for each stock, and estimate interannual variation when sufficient data have been collected.
- 5) Investigate ways to improve compliance to help VTR reporting. Currently about 300 of the 1,500 permitted vessels consistently under-report the number of statistical area fished.
- 6) Encourage support for Industry Based Surveys, which can provide valuable information on stock abundance, distribution, and catchability in research surveys that is independent of and supplemental to NMFS efforts.
- 7) Explore use of a more complex Stock Synthesis model with small rates of migration between stocks.
- 8) Develop time series of winter flounder consumption by the major fish predators of winter flounder.
- 9) Conduct studies to better understand recruitment processes of winter flounder, particularly in the GOM and on GBK.
- 10) Revise the NEFSC assessment software to include the ability to model S-R functions including environmental factors with errors/probabilities.
- 11) Further explore the relationship between large scale environmental forcing (e.g., temperature, circulation, and climate) for effects on life history, reproduction, and recruitment in the Georges Bank stock.
- 12) Explore development of an index of winter flounder larval abundance based on MARMAP, GLOBEC, etc., time series.

Gulf of Maine

- 1) Update and investigate migration rates between stock and movement patterns. The most recent comprehensive tagging study was completed in the 1960s (Howe and Coates), and a new large scale effort is warranted. Further investigate localized structure/genetics within the stocks.
- 2) Investigate the feasibility of port samplers collecting otoliths from large and lemon sole instead of scales because of problems under-ageing larger fish.
- 3) Investigate use of periodic gonad histology studies as a check to make ensure maturity estimates are accurate, with particular attention to obtaining sufficient samples from the Georges Bank stock.
- 4) Investigate the skipped spawning percentage for each stock, and estimate interannual variation when sufficient data have been collected.
- 5) Investigate ways to improve compliance to help VTR reporting. Currently about 300 of the 1,500 permitted vessels consistently under-report the number of statistical area fished.
- 6) Encourage support for Industry Based Surveys, which can provide valuable information on stock abundance, distribution, and catchability in research surveys that is independent of and supplemental to NMFS efforts.
- 7) Explore use of a more complex Stock Synthesis model with small rates of migration between stocks.
- 8) Develop time series of winter flounder consumption by the major fish predators of winter flounder.
- 9) Conduct studies to better understand recruitment processes of winter flounder, particularly in the GOM and on GBK.
- 10) Revise the NEFSC assessment software to include the ability to model S-R functions including environmental factors with errors/probabilities.
- 11) Further explore the relationship between large scale environmental forcing (e.g., temperature, circulation, climate) for effects on life history, reproduction, and recruitment in the Georges Bank stock.
- 12) Explore development of an index of winter flounder larval abundance based on MARMAP, GLOBEC, etc. time series.

IX. List of References

- National Oceanic and Atmospheric Administration. Commercial Fisheries Statistics Tool.
Access: <http://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual-landings/index>
- National Oceanic and Atmospheric Administration. Marine Recreational Fisheries Program: Recreational Fisheries Statistics Tool.
Access: <http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/index>
- Northeast Fisheries Science Center. 2011. *52nd Northeast Regional Stock Assessment Workshop (52nd SAW) Assessment Report*. US Department of Commerce, Northeast Fish Science Center Ref Doc. 11-17; 962 p.
Available online at <http://www.nefsc.noaa.gov/nefsc/publications/>
- Northeast Fisheries Science Center. 2008. *Assessment of 19 Northeast Groundfish Stocks through 2007: Report of the 3rd Groundfish Assessment Review Meeting (GARM III)*, Northeast Fisheries Science Center, Woods Hole, Massachusetts, August 4-8, 2008. US Department of Commerce, NOAA Fisheries, Northeast Fish Science Center Ref. Doc. 08-15; 884 p + xvii.

X. Figures and Tables

Figure 1. Southern New England/ Mid-Atlantic winter flounder spawning stock biomass and biological reference points.

Data Source: SAW52 (2011)

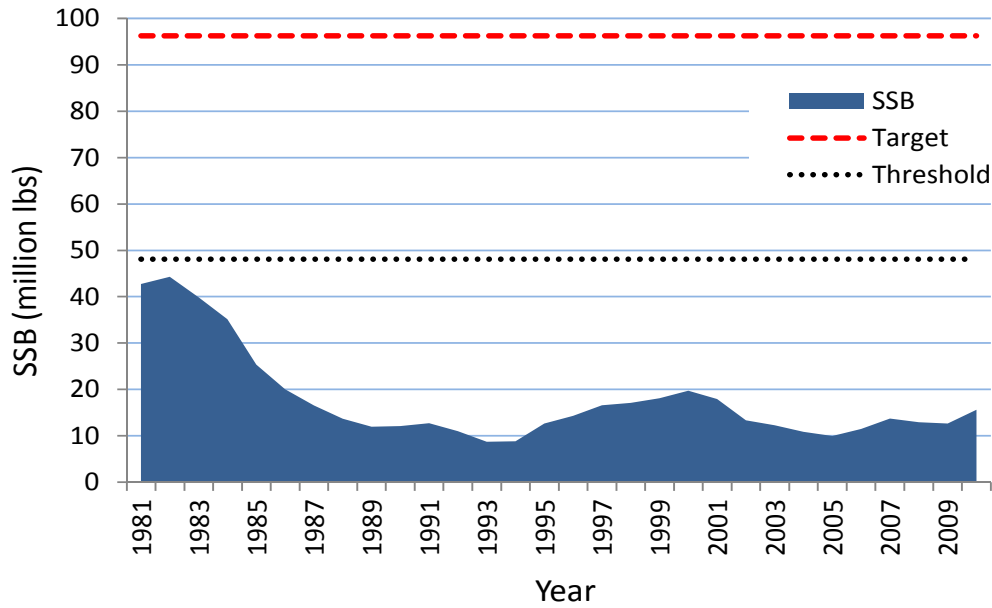


Figure 2. Southern New England/ Mid-Atlantic winter flounder recruitment.

Data Source: SAW52 (2011)

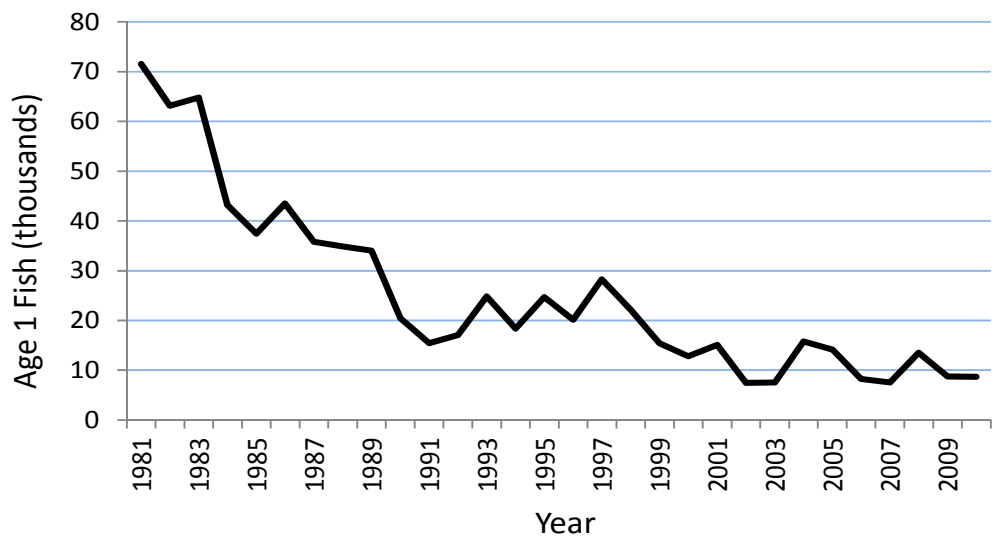


Figure 3. Gulf of Maine winter flounder commercial and recreational landings.

Data Source: SAW52 (2011)

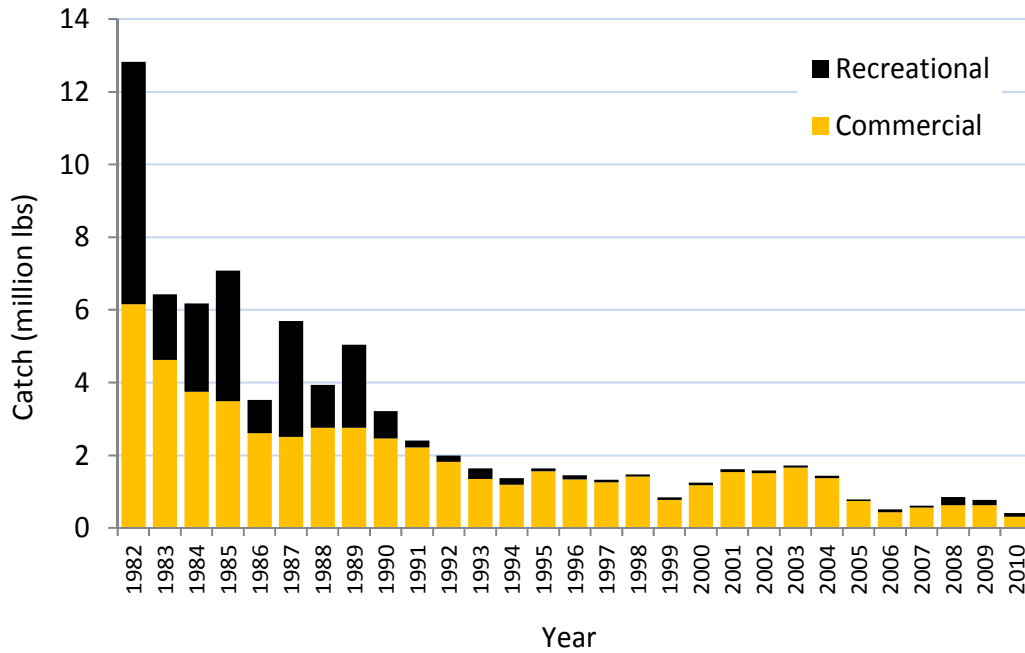


Figure 4. Southern New England/Mid-Atlantic winter flounder commercial and recreational landings. Recreational time series began in 1981.

Data Source: SAW52 (2011)

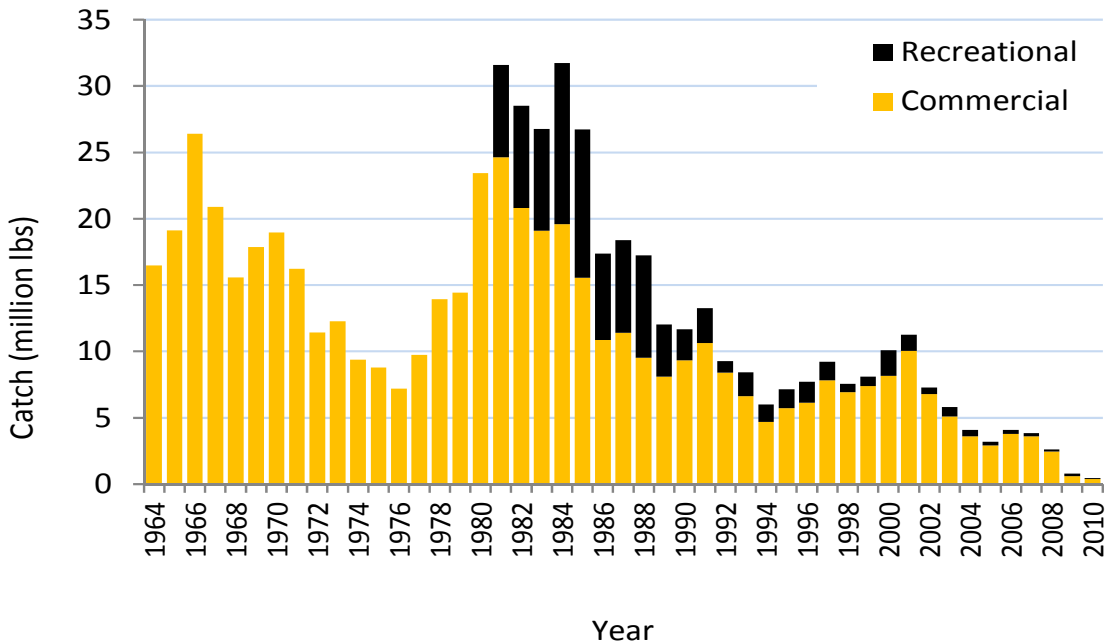


Figure 5. Total landings of winter flounder, commercial and recreational (A+B1) landings. Recreational time series began in 1981.

Data Source: NOAA and MRIP

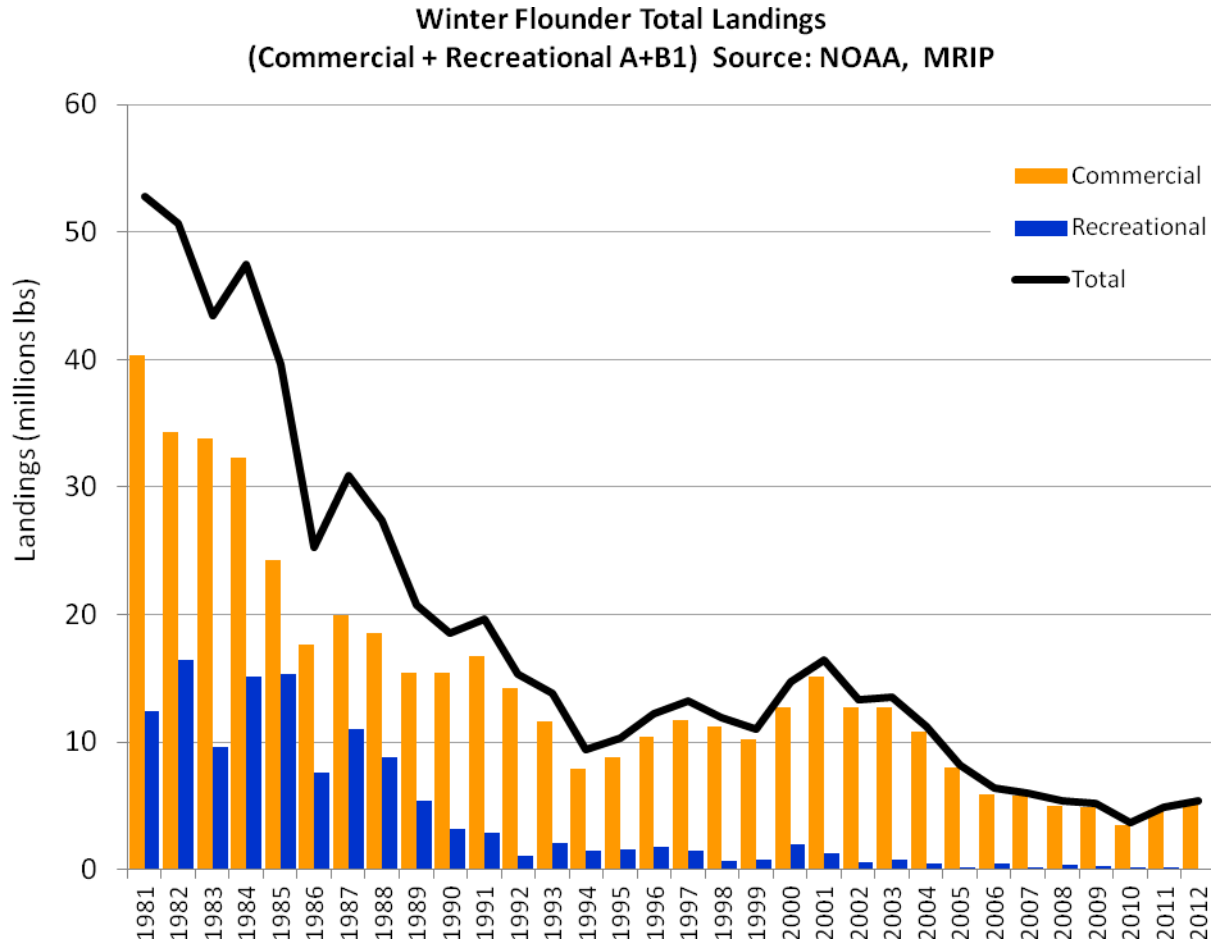


Table 1. Winter flounder commercial landings and percentage by state from 2010-2012.

Source: Personal communication from the NMFS Fisheries Statistics Division, Silver Spring, MD

State	2010		2011		2012	
	Pounds	%	Pounds	%	Pounds	%
Massachusetts	3,341,962	95.5	4,474,275	95.6	5,149,233	98.5
Rhode Island	76,413	2.2	84,759	1.8	44,992	0.9
New York	17,421	0.5	11,952	0.3	10,430	0.2
New Jersey	6,938	0.2	6,051	0.1	7,266	0.1
Connecticut	6,075	0.2	7,175	0.2	15,794	0.3
New Hampshire	3,245	0.1	5,189	0.1	10,307	0.2
Delaware	0	0.0	0	0.0	0	0.0
Maine	confidential	NA	confidential	NA	confidential	NA
Annual Total*	3,452,054		4,589,401		5,227,715	

* Annual Total does excludes confidential data

Table 2. Recreational harvest (A + B1) by weight (lbs) by state 2010-2012.

Source: Personal communication from the NMFS Fisheries Statistics Division, Silver Spring, MD

State	2010		2011		2012	
	Pounds	%	Pounds	%	Pounds	%
Massachusetts	86,220	43.4	66,728	31.9	47,698	44.2
New Jersey	48,481	24.4	33,744	16.1	40	0.0
New York	40,095	20.2	66,012	31.5	47,343	43.8
Connecticut	20,196	10.2	25,449	12.2	12,471	11.5
New Hampshire	1,930	1.0	17,385	8.3	433	0.4
Rhode Island	1,640	0.8	0	0.0	0	0.0
Delaware	0	0.0	0	0.0	0	0.0
Maine	NA		NA		NA	
Annual Total	288,174		198,562		209,318	

Table 3. Three-year average commercial landings by state from 2010-2012.

Source: Personal communication from the NMFS Fisheries Statistics Division, Silver Spring, MD

State	3-Year Averages from 2009-2011	
	Pounds	%
Massachusetts	4,321,823	97.6
Rhode Island	68,721	1.6
New York	13,268	0.3
New Jersey	6,752	0.2
Connecticut	9,681	0.2
New Hampshire	6,247	0.1
Delaware	0	0.0
Maine	confidential	NA

Table 4. Three-year average recreational harvest by state from 2010-2012

Source: Personal communication from the NMFS Fisheries Statistics Division, Silver Spring, MD

State	3-Year Averages from 2010-2012	
	Pounds	%
Massachusetts	66,882	38.9
New Jersey	27,422	15.9
New York	51,150	29.7
Connecticut	19,372	11.3
New Hampshire	6,583	3.8
Rhode Island	547	0.3
Delaware	0	0.0
Maine	NA	NA

Table 5. State compliance with ASMFC winter flounder commercial regulations in 2012

State	Stock Unit	Size Limit	Trip Limit	Seasonal Closure (dates inclusive)	Recruitment Assessment	SSB Assessment	Min. Mesh Size	De minimis Request
Maine	GOM	12"	500 lbs	May 1 – June 30	N/A	N/A	6.5"	No
New Hampshire	GOM	12"	500 lbs	April 1 – June 30	N/A	N/A	6.5"	No
Massachusetts	GOM	12"	500 lbs	Open all year	YOY Seine Survey (June)	Bottom Trawl Survey (May, Sept)	6.5"	No
	SNE/MA	12"	50 lbs	Open all year	YOY Seine Survey (June)	Bottom Trawl Survey (May, Sept)	6.5"	No
Rhode Island	SNE/MA	12"	50 lbs	Open all year	Narragansett Bay Juvenile Finfish Survey	Trawl Surveys	6.5"	No
Connecticut	SNE/MA	12"	50 lbs or 38 fish	March 1 – April 14	N/A	Long Island Sound Trawl Survey	6.5"	No
New York	SNE/MA	12"	50 lbs	June 14 – Nov 30	Small Mesh Trawl Survey, Seine Survey	N/A	6.5"	No
New Jersey	SNE/MA	12"	38 fish	June 1 – Nov 30. Fyke net closed Feb 20 – Oct 31	N/A	Ocean Trawl Survey	6.5"	No
Delaware	SNE/MA	12"	50 lbs	N/A	Juvenile Trawl Survey	N/A	Trawling prohibited	YES, Recommended

Table 6. State compliance with ASMFC winter flounder recreational regulations in 2012

State	Stock Unit	Creel Limit	Size Limit	Seasonal Closure (dates inclusive)	Qualifies for <i>de minimus</i> ?	<i>De Minimis Request?</i>
Maine	GOM	8	12"	October 1 – June 30	Yes	No
New Hampshire	GOM	8	12"	May 15 – May 24	No	No
Massachusetts	GOM	8	12"	February 1 – May 31 (spawning closure)	No	No
	SNE/MA	2	12"	OPEN from 4 th Saturday in April and Sept., to remain open for 30 consecutive days	No	No
Rhode Island	SNE/MA	2	12"	OPEN from 4 th Saturday in April and last Saturday in Sept., to remain open for 30 consecutive days	No	No
Connecticut	SNE/MA	2	12"	May 31 – March 31	No	No
New York	SNE/MA	2	12"	May 31 – March 31	No	No
New Jersey	SNE/MA	2	12"	May 22 – March 22	No	No
Delaware	SNE/MA	2	12"	April 11 – Feb 10	Yes	YES, Recommended