Summer Flounder Fishery Information Document

June 2022

This document provides a brief overview of the biology, stock condition, management system, and fishery performance for summer flounder (*Paralichthys dentatus*), with an emphasis on 2021. Data sources include unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, as well as Marine Recreational Information Program (MRIP) data and stock assessment information. All 2021 data should be considered preliminary. For more resources on summer flounder management, including previous Fishery Information Documents, please visit http://www.mafmc.org/sf-s-bsb.

Key Facts:

- The 2021 management track stock assessment found that in 2019, summer flounder was not overfished and overfishing was not occurring.
- While recruitment for summer flounder has generally been below-average since 2011, the 2018 estimate of recruitment was above average and the largest year class estimated since 2009. 2019 recruitment is estimated to be below average.
- 2021 recreational summer flounder harvest was estimated at 6.82 million pounds, about 82% of the harvest limit of 8.32 million pounds. This is the lowest estimate of recreational harvest since 1989.
- Commercial landings in 2021 (10.36 million pounds; 83% of commercial quota) increased by about 14% from 2020 landings (9.12 million pounds; 79% of commercial quota).
- Average commercial ex-vessel price increased from $2.69 in 2020 to $2.91 in 2021. Average price per pound has decreased in recent years from its peak in 2017 ($4.64 per pound in 2021 dollars).

Basic Biology

Summer flounder spawn during the fall and winter over the open ocean areas of the continental shelf. From October to May, larvae and postlarvae migrate inshore, entering coastal and estuarine nursery areas. Juveniles are distributed inshore and in many estuaries throughout the range of the species during spring, summer, and fall. Adult summer flounder exhibit strong seasonal inshore-offshore movements, normally inhabiting shallow coastal and estuarine waters during the warmer months of the year and remaining offshore during the colder months.

Summer flounder habitat includes pelagic waters, demersal waters, saltmarsh creeks, seagrass beds, mudflats, and open bay areas from the Gulf of Maine through North Carolina. Summer flounder are opportunistic feeders; their prey includes a variety of fish and crustaceans. While the natural predators of adult summer flounder are not fully documented, larger predators (e.g., large sharks, rays, and monkfish) probably include summer flounder in their diets.[1]

Spawning occurs during autumn and early winter, and the larvae are transported toward coastal areas by prevailing water currents. Development of post larvae and juveniles occurs primarily within bays and estuarine areas. Most fish are sexually mature by age 2. The largest fish are females, which can attain lengths over 90 cm (36 in) and weights up to 11.8 kg (26 lb). The Northeast Fisheries Science Center (NEFSC) commercial fishery sampling in 2018 observed the oldest summer flounder collected to date, a 57 cm (22.4 in) fish (likely a male) estimated to be age 20. Also sampled were two age 17 fish, at 52 cm (20.5 in; likely a male) and at 72 cm (28.3 in; likely a female). Two large (likely female) fish at 80 and 82 cm (31.5 and 32.3 in) were both estimated to be age 9, from the 2009 year class (the 6th largest of the 36 year modeled time series). These samples indicate that increased survival of summer flounder over the last two decades has allowed fish of both sexes to grow to the oldest ages estimated to date.[2]

Status of the Stock

In June 2021, the NEFSC provided a management track assessment update for summer flounder with data through 2019. Given data gaps for 2020 related to COVID-19 and the time required to address those gaps where possible, 2020 data could not be incorporated into this update.

The 2021 management track assessment update made minor revisions to the biological reference points for spawning stock biomass (SSB) and fishing mortality (F). The 2021 assessment update results indicate that the summer flounder stock was not overfished in 2019. SSB has generally decreased since 2003. SSB in 2019 was estimated to be about 86% of the biomass target reference point and about 72% above the overfished threshold which is equivalent to ½ of the biomass target (Table 1; Figure 1).

The 2021 assessment also indicated that overfishing was not occurring in 2019, as 2019 F was estimated to be 19% below the fishing mortality threshold reference point (Table 1; Figure 2).

The average recruitment from 1982 to 2019 is 53 million fish at age 0. Recruitment of juvenile summer flounder was below-average from 2011-2017, ranging from 31 to 45 million fish and averaging 36 million fish. The driving factors behind this period of below average recruitment have not been identified. The 2018 year class is above average at an estimated 61 million fish, which is largest recruitment estimate since 2009, while the 2019 year class is below average at 49 million fish.[3]

Table 1: Biomass and fishing mortality rate reference points and terminal year estimates for summer flounder from the 2021 management track assessment.[3]

	Spawning stock biomass	**Fishing mortality rate (F)**
Terminal year estimate (2019)	104.49 million lb (47,397 mt)	0.340
Target	121.73 mil lb (55,217 mt)	N/A
Threshold	60.87 million lb (27,609 mt)	0.422
Status	**Not overfished**	**Not overfishing**

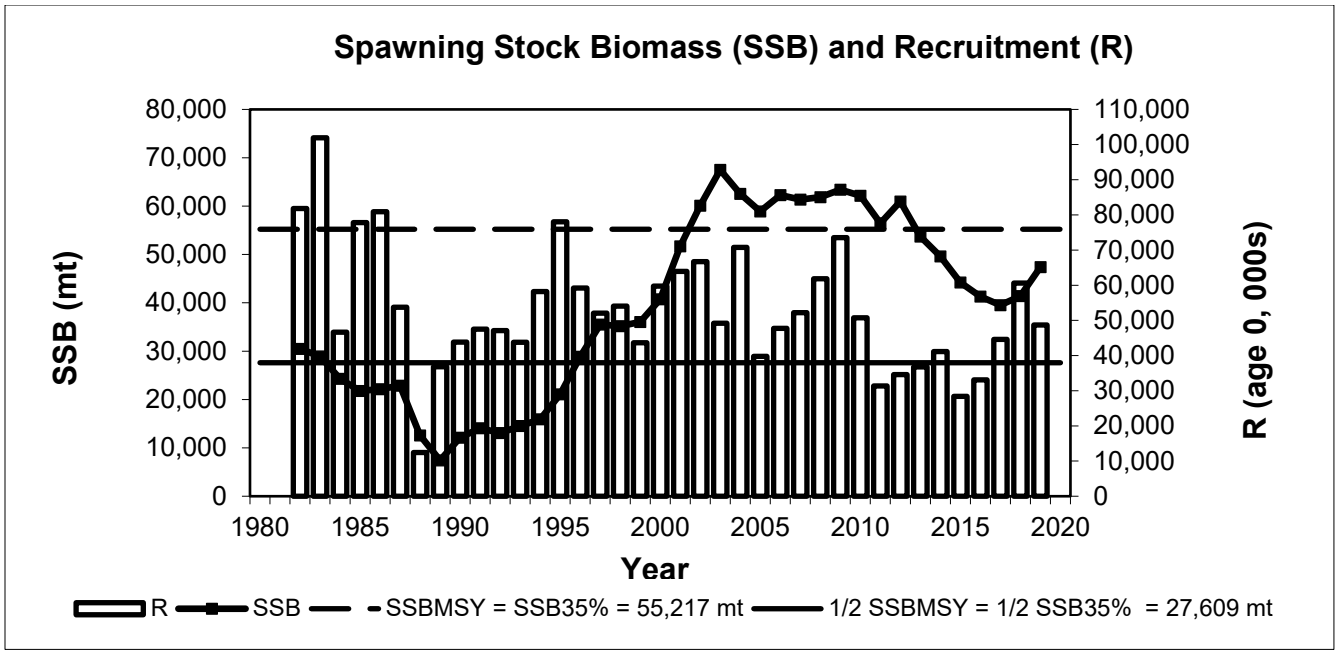

Figure 1: Summer flounder spawning stock biomass (SSB; solid line with square markers) and recruitment at age 0 (R; vertical bars),1982-2019. The horizontal dashed line is the target biomass level. The horizontal solid line is the threshold biomass level defining an overfished condition.

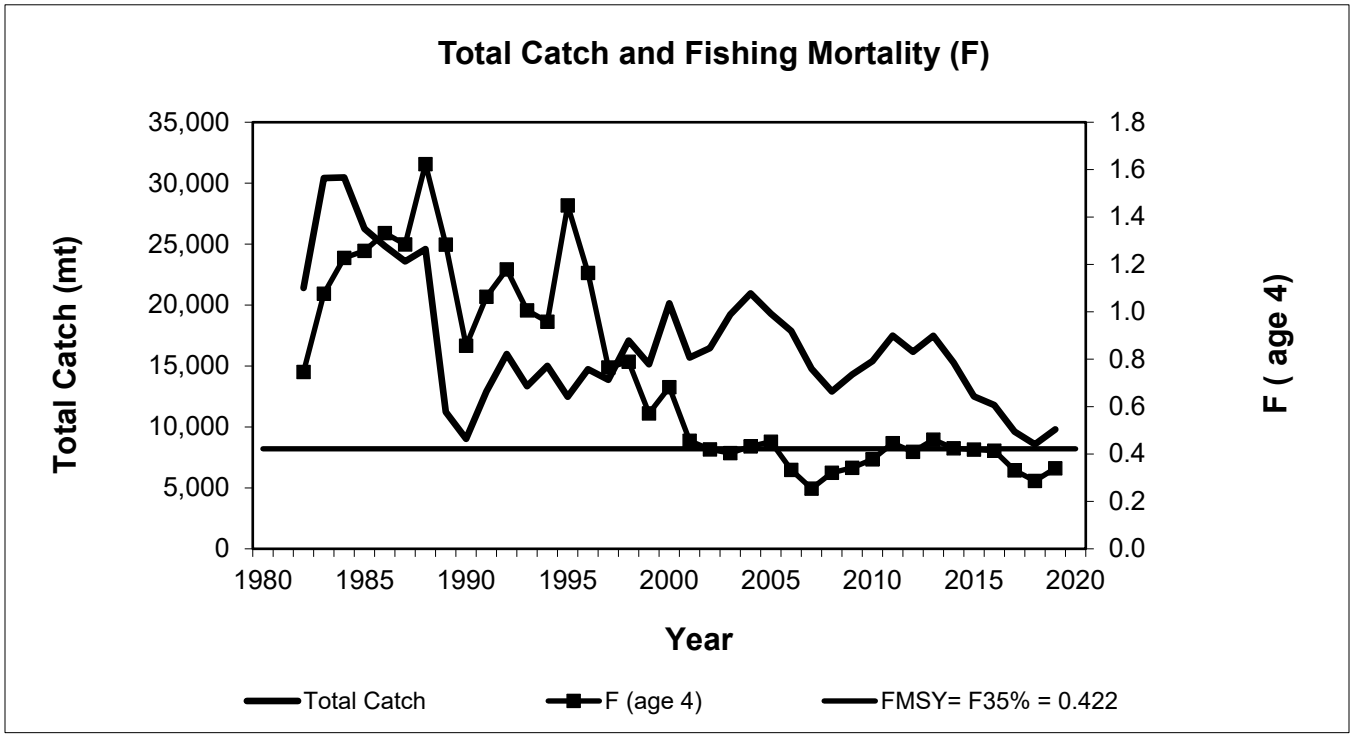

Figure 2: Total fishery catch (metric tons; mt; solid line) and fully-recruited fishing mortality (F, peak at age 4; squares) of summer flounder, 1982-2019. The horizontal solid line is the fishing mortality reference point. When F exceeds this threshold, overfishing is occurring.

Management System and Fishery Performance

Management

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission) work cooperatively to develop fishery regulations for summer flounder off the east coast of the United States. The Council and Commission work in conjunction with NMFS, which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone, or EEZ).

The joint Fishery Management Plan (FMP) for summer flounder became effective in 1988 and established the management unit for summer flounder as U.S. waters from the southern border of North Carolina northward to the U.S.-Canadian border. The FMP also established measures to ensure effective management of summer flounder fisheries, which currently include catch and landings limits, commercial quotas, recreational harvest limits (RHLs), minimum size limits, gear regulations, permit requirements, and other provisions as prescribed by the FMP. The Summer Flounder FMP, including subsequent Amendments and Frameworks, are available on the Council website at: http://www.mafmc.org/fisheries/fmp/sf-s-bsb.

There are large commercial and recreational fisheries for summer flounder. These fisheries are managed primarily using output controls (catch and landings limits). The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for summer flounder. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), which include both allowable landings and expected dead discards. Currently, 60% of the total allowable landings (calculated by subtracting total expected dead discards from the ABC) are allocated to the commercial fishery as a commercial quota and 40% allocated to the recreational fishery as an RHL. In December 2021, the Council and Commission revised the commercial/recreational allocation such that 55% of the ABC will be allocated to the commercial fishery and 45% to the recreational fishery. This represents a change from a landings-based allocation to a catch-based allocation, such that the allocation will be applied directly to the ABC instead of to the total allowable landings. These changes are pending review by NMFS and if approved, are expected to be effective January 1, 2023.[1]

Fishery Landings Summary

Table 2 shows summer flounder catch and landings limits from 2012 through 2023, as well as commercial and recreational landings through 2021. Total (commercial and recreational combined) summer flounder landings generally declined throughout the early 1980s, and increased again in the mid-2000s before dropping to a time series low of 13.74 million lb in 2018 (Figure 3).[4,5]

In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology (i.e., a transition from a telephone-based effort survey to a mail-based effort survey). The revised estimates of catch and landings are several times higher than the

[1] For more information on these allocation revisions, see the fact sheet at: https://www.mafmc.org/s/SFSBSB-Allocation-FAQs.pdf.

previous estimates for shore and private boat modes. All recreational estimates in this document reflect revised MRIP estimates except where otherwise noted.

Recreational harvest estimates for 2020 were impacted by temporary suspension of shoreside intercept surveys due to the COVID-19 pandemic. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. These proxy data match the time, place, and fishing mode combinations that would have been sampled had the intercept surveys continued uninterrupted. Proxy data were combined with observed data to produce 2020 catch estimates using the standard estimation methodology. NMFS previously indicated that 2020 data may be revised based on potential incorporation of 2021 data into these imputation methods; as of completion of this document no updates have been made. Commercial landings reporting in 2020 continued uninterrupted.

Table 2: Summary of catch limits, landings limits, and landings for commercial and recreational summer flounder fisheries from 2012 through 2023. Values are in millions of pounds.

Measures	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023[d]**
ABC	25.58	22.34	21.94	22.57	16.26	11.30	13.23	25.03	25.03	27.11	33.12	33.12
Commercial ACL	14.00	12.11	12.87	13.34	9.43	6.57	7.70	13.53	13.53	14.63	18.48	18.48
Commercial quota[a,b]	12.73	11.44	10.51	11.07	8.12	5.66	6.63	10.98	11.53	12.49	15.53	15.53
Commercial landings	13.05	12.56	11.00	10.71	7.80	5.87	6.17	9.06	9.12	10.36	--	--
% of commercial quota landed	102%	110%	105%	97%	96%	104%	93%	83%	79%	83%	--	--
Recreational ACL	11.58	10.23	9.07	9.44	6.84	4.72	5.53	11.51	11.51	12.48	14.64	14.64
Recreational harvest limit[a]	8.49	7.63	7.01	7.38	5.42	3.77	4.42	7.69	7.69	8.32	10.36	10.36
Harvest - OLD MRIP	6.49	7.36	7.39	4.72	6.18	3.19	3.35	--	--	--	--	--
Harvest - NEW MRIP	16.13	19.41	16.23	11.83	13.24	10.09	7.60	7.80	10.06	6.82	--	--
% of RHL landed[c]	76%	96%	105%	64%	114%	85%	76%	101%	131%[d]	82%	--	--

[a] For 2012-2014, commercial quotas and RHLs are adjusted for Research Set Aside (RSA). Quotas and RHLs for 2015-2023 do not reflect an adjustment for RSA due to the suspension of the program in 2014.

[b] Commercial quotas also reflect deductions from prior year landings overages and discard-based Accountability Measures.

[c] The revised MRIP data cannot be compared to RHLs prior to 2019, given that these limits were set based on an assessment that used previous MRIP data. For the comparison of harvest to the RHL, old MRIP values are used for 2012-2018 and revised MRIP values are used for 2019-2021.

[d] Previously adopted limits for 2023 will be reviewed in 2022 by the SSC, Monitoring Committee, and Council/Commission. Sector-specific limits including the commercial and recreational ACLs, RHL, and commercial quota are expected to be revised given recently adopted changes to the commercial/recreational allocation, expected to be effective January 1, 2023.

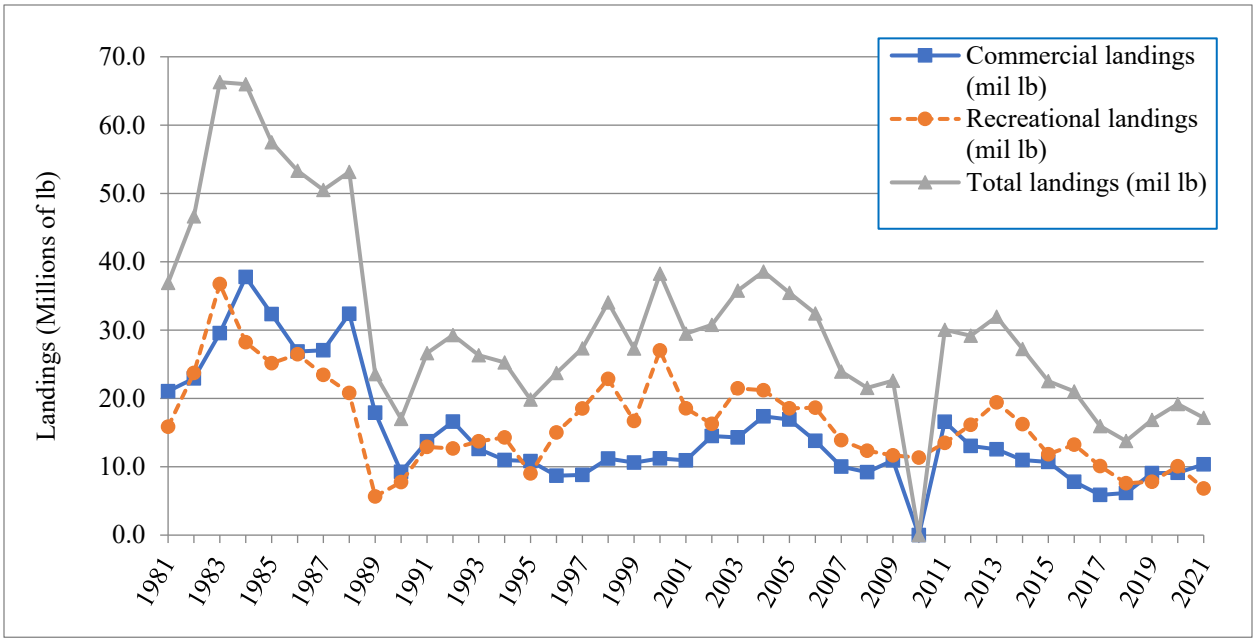

Figure 3: Commercial and recreational summer flounder landings in millions of pounds, Maine-North Carolina, 1981-2021.[5]

Commercial Fishery

Commercial landings of summer flounder peaked in 1984 at 37.77 million pounds and reached a low of 5.87 million pounds in 2017 (Figure 3). In 2021, commercial fishermen from Maine through North Carolina landed 10.36 million pounds of summer flounder, about 83% of the commercial quota (12.49 million pounds; Table 2). [4]

Since 1993, a moratorium permit has been required to fish commercially for summer flounder in federal waters. In 2021, 711 vessels held such permits.[6]

The commercial quota is divided among the states based on the allocation percentages specified in the FMP. Each state sets measures to achieve their state-specific commercial quotas. Two or more states may transfer or combine their summer flounder commercial quota under mutual agreement and with the approval of the NMFS Regional Administrator. The commercial allocations to the states were modified via Amendment 21, which became effective on January 1, 2021. The revised allocation system modifies the state-by-state commercial quota allocations in years when the annual coastwide commercial quota exceeds the specified trigger of 9.55 million pounds. Annual coastwide commercial quota of up to 9.55 million pounds is distributed according to the previous state allocations (Table 3). In years when the coastwide quota exceeds 9.55 million pounds, the *additional* quota amount beyond this trigger will be distributed by equal shares to all states except Maine, Delaware, and New Hampshire, which would split 1% of the additional quota (Table 3). The total percentage allocated annually to each state is dependent on how much additional quota beyond 9.55 million pounds, if any, is available in any given year. This allocation system is designed to provide for more equitable distribution of quota when stock biomass is higher, while also considering the historic importance of the fishery to each state.

Table 3: Current (effective January 2021) allocation of summer flounder commercial quota to the states.

State	Total state commercial quota allocation = baseline quota allocation + additional quota allocation	
	Allocation of baseline quota ≤9.55 mil lb	Allocation of additional quota beyond 9.55 mil lb
ME	0.04756%	0.333%
NH	0.00046%	0.333%
MA	6.82046%	12.375%
RI	15.68298%	12.375%
CT	2.25708%	12.375%
NY	7.64699%	12.375%
NJ	16.72499%	12.375%
DE	0.01779%	0.333%
MD	2.03910%	12.375%
VA	21.31676%	12.375%
NC	27.44584%	12.375%
Total	100%	100%

For 1994 through 2021, NMFS dealer data indicate that summer flounder total ex-vessel revenue from Maine to North Carolina ranged from a low of $14.28 million in 1996 to a high of $31.76 million in 2015 (values adjusted to 2021 dollars to account for inflation). The mean price per pound ranged from a low of $1.34 in 2002 to a high of $4.22 in 2017 (both values in 2021 dollars). In 2021, 10.36 million pounds of summer flounder were landed generating $30.18 million in total ex-vessel revenue (an average of $2.91 per pound; Figure 4).[4]

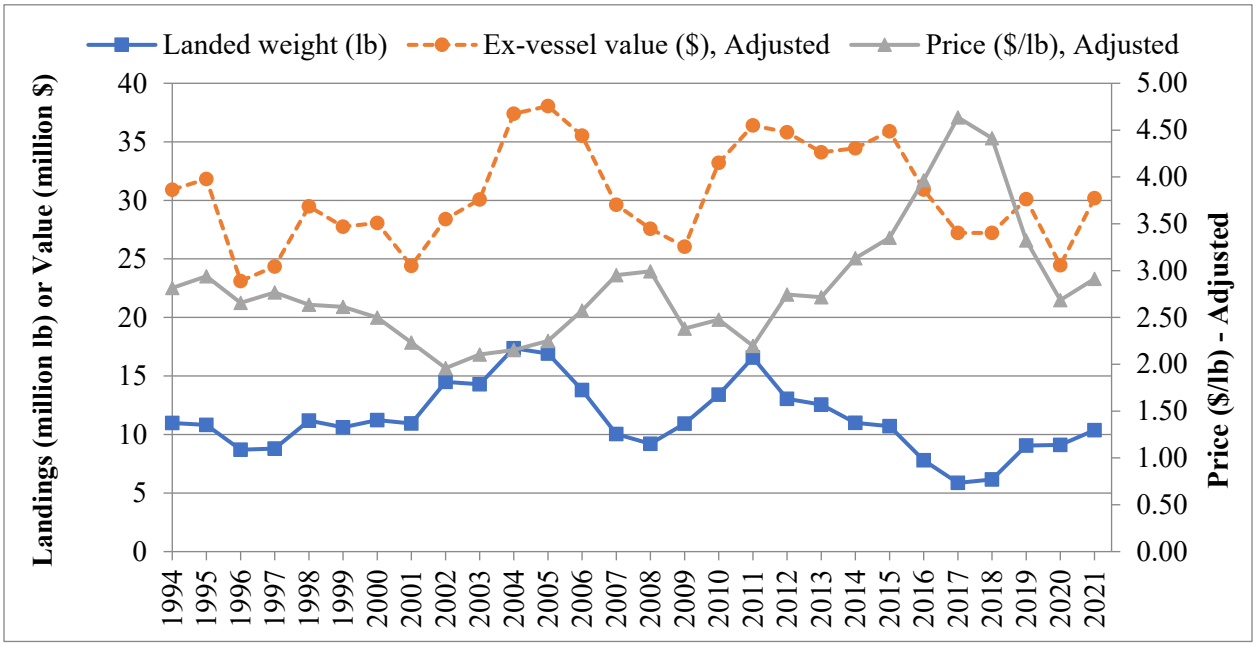

Figure 4: Landings, ex-vessel value, and price per pound for summer flounder, Maine through North Carolina, 1994-2021. Ex-vessel value and price are adjusted to real 2021 dollars using the Gross Domestic Product Price Deflator (GDPDEF).[4]

VTR data indicate that 99% of summer flounder landings in 2021 were taken by bottom otter trawls.[7] Current regulations require a 14-inch total length minimum fish size in the commercial fishery. Trawl nets are required to have 5.5-inch diamond or 6-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (i.e., 200 lb from November 1-April 30 and 100 lb from May 1-October 31).

According to federal VTR data, statistical areas 537 and 616 were responsible for the highest percentage of commercial summer flounder catch in 2021 (30% and 24% respectively; Table 4). While statistical area 539 accounted for only 5% of 2021 summer flounder catch, this area had the highest number of trips that caught summer flounder (2,177 trips; Table 4; Figure 5).[7]

Over 164 federally permitted dealers from Maine through North Carolina bought summer flounder in 2021. More dealers from New York bought summer flounder than any other state (Table 5). All dealers combined bought approximately $30.18 million worth of summer flounder in 2021.[4]

At least 100,000 pounds of summer flounder were landed by commercial fishermen in 16 ports in 8 states in 2021. These ports accounted for 90% of all 2021 commercial summer flounder landings. Point Judith, RI and Beaufort, NC were the leading ports in 2021 in pounds of summer flounder landed, while Point Judith, RI was the leading port in number of vessels landing summer flounder (Table 6).[4] Detailed community profiles developed by the Northeast Fisheries Science Center's Social Science Branch can be found at www.mafmc.org/communities/.

Table 4: Statistical areas that accounted for at least 5% of the total summer flounder catch in 2021, with associated number of trips.[7] Federal VTR data do not capture landings by vessels only permitted to fish in state waters.

Statistical Area	Percent of 2021 Commercial Summer Flounder Catch	Number of Trips
537	30%	1,362
616	24%	756
613	17%	1,521
539	5%	2,177
612	5%	899

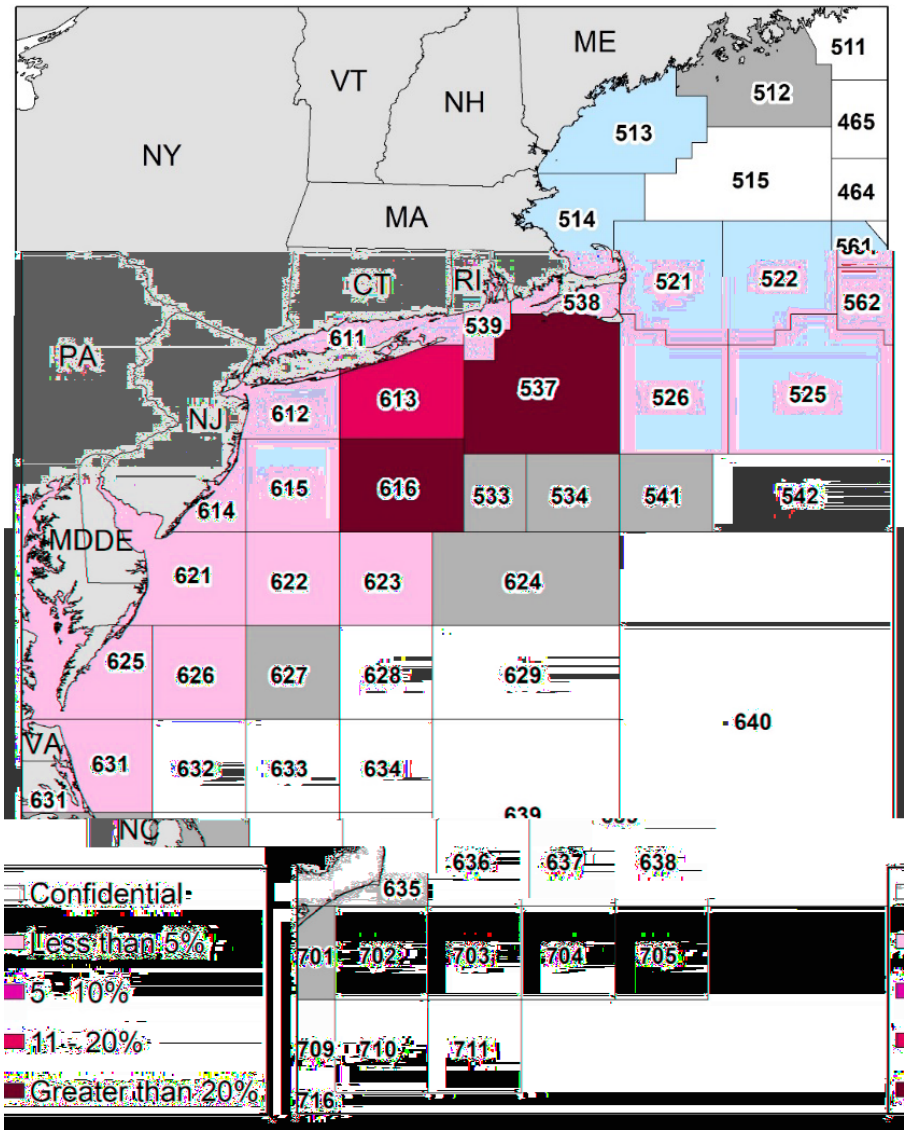

Figure 5: Proportion of commercial summer flounder catch (all vessel reported landings and discards) by NMFS statistical area in 2021 based on federal VTR data. Statistical areas marked "confidential" are associated with fewer than three vessels and/or dealers. The amount of catch not reported on federal VTRs (e.g., catch from vessels permitted to fish only in state waters) is unknown.[7]

Table 5: Number of dealers per state which reported purchases of summer flounder in 2021. C = Confidential.[4]

State	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC
# of Dealers	C	25	20	14	46	27	0	4	12	16

Table 6: Ports reporting at least 100,000 pounds of commercial summer flounder landings in 2021, based on dealer data.[4]

Port	Commercial summer flounder landings (lb)	% of total	Number of vessels
POINT JUDITH, RI	1,748,523	17%	128
BEAUFORT, NC	1,434,811	14%	47
PT. PLEASANT, NJ	1,174,359	11%	48
HAMPTON, VA	965,319	9%	47
NEWPORT NEWS, VA	620,942	6%	32
MONTAUK, NY	609,729	6%	67
STONINGTON, CT	393,382	4%	19
NEW BEDFORD, MA	372,109	4%	59
CAPE MAY, NJ	352,130	3%	35
OCEAN CITY, MD	345,249	3%	18
ENGELHARD, NC	240,539	2%	5
WANCHESE, NC	207,119	2%	7
BELFORD, NJ	194,955	2%	15
HAMPTON BAYS, NY	191,819	2%	28
EAST HAVEN, CT	174,107	2%	9
LONG BEACH/ BARNEGAT LIGHT, NJ	165,919	2%	12
CHINCOTEAGUE, VA	147,434	1%	14

Recreational Fishery

There is a significant recreational fishery for summer flounder, primarily in state waters when the fish migrate inshore during the warm summer months. The Council and Commission determine annually whether to manage the recreational fishery under coastwide measures or conservation equivalency. Under conservation equivalency, state- or region- specific measures are developed through the Commission's management process and submitted to NMFS. The combined state or regional measures must achieve the same level of harvest as a set of coastwide measures developed to adhere to the overall RHL. If NMFS considers the combination of the state- or region- specific measures to be "equivalent" to the coastwide measures, they may then waive regulations in federal waters. Anglers fishing in federal waters are then subject to the measures of the state in which they land summer flounder.

The recreational fishery has been managed using federal conservation equivalency each year since 2001. Since 2014, a regional approach has been used, under which the states within each region must have identical size limits, possession limits, and season length. Table 7 shows the 2021 and 2022 regional conservation equivalency measures. Measures were adjusted in 2022 to allow for up to a 16.5% liberalization in harvest, given the increase in the RHL between 2021 and 2022 and because recent harvest estimates have been well below the 2022 RHL.

Table 7: Summer flounder recreational fishing measures 2021-2022, by state, under regional conservation equivalency. Conservation equivalency regions (highlighted in alternating colors) include: 1) Massachusetts, 2) Rhode Island, 3) Connecticut and New York, 4) New Jersey, 5) Delaware, Maryland, The Potomac River Fisheries Commission, and Virginia, and 6) North Carolina.

	2021			2022		
State	**Minimum Size (inches)**	**Possession Limit**	**Open Season**	**Minimum Size (inches)**	**Possession Limit**	**Open Season**
Massachusetts	17	5 fish	May 23-October 9	16.5	5 fish	May 21-September 19
Rhode Island (Private, For-Hire, and all other shore-based fishing sites)	19	6 fish	May 3-December 31	18	4 fish	May 3-December 31
RI 7 designated shore sites	19	4 fish[a]		18	2 fish[a]	
	17	2 fish[a]		17	2 fish[a]	
Connecticut	19	4 fish	May 4-September 30	18.5	4 fish	May 1-October 9
CT Shore Program (45 designed shore sites)	17			17		
New York	19			18.5		
New Jersey	18	3 fish	May 22-September 19	17-17.99 slot limit	2 fish	May 2-September 27
				18	1 fish	
NJ Shore program site (ISBSP)	16	2 fish		16	2 fish	
New Jersey/Delaware Bay COLREGS	17	3 fish		17	3 fish	
Delaware	16.5	4 fish	January 1-December 31	16	4 fish	January 1-December 31
Maryland						
PRFC						
Virginia						
North Carolina	15	4 fish	August 16-September 30[b]	15	1 fish	September 1-September 30[b]

[a] Rhode Island's shore program includes a combined possession limit of 6 fish, no more than 2 fish at 17-inch minimum size limit.

[b] North Carolina has restricted their recreational season in recent years for all flounders in North Carolina (southern, gulf, and summer flounder) due to the need to end overfishing on southern flounder. North Carolina manages all flounder in the recreational fishery under the same regulations.

MRIP estimates indicate that recreational catch (harvest plus live and dead discards) for summer flounder peaked in 2010 with 58.89 million fish caught. Recreational harvest peaked in 1983, with 25.78 million fish landed, totaling 36.74 million pounds. Recreational catch was lowest in 1989 with 5.06 million fish caught. Recreational harvest in numbers of fish reached a low in 2021 with 2.32 million fish landed (6.82 million pounds), while recreational harvest in pounds was lowest in 1989 at 5.66 million pounds (3.10 million fish; Figure 6).[5]

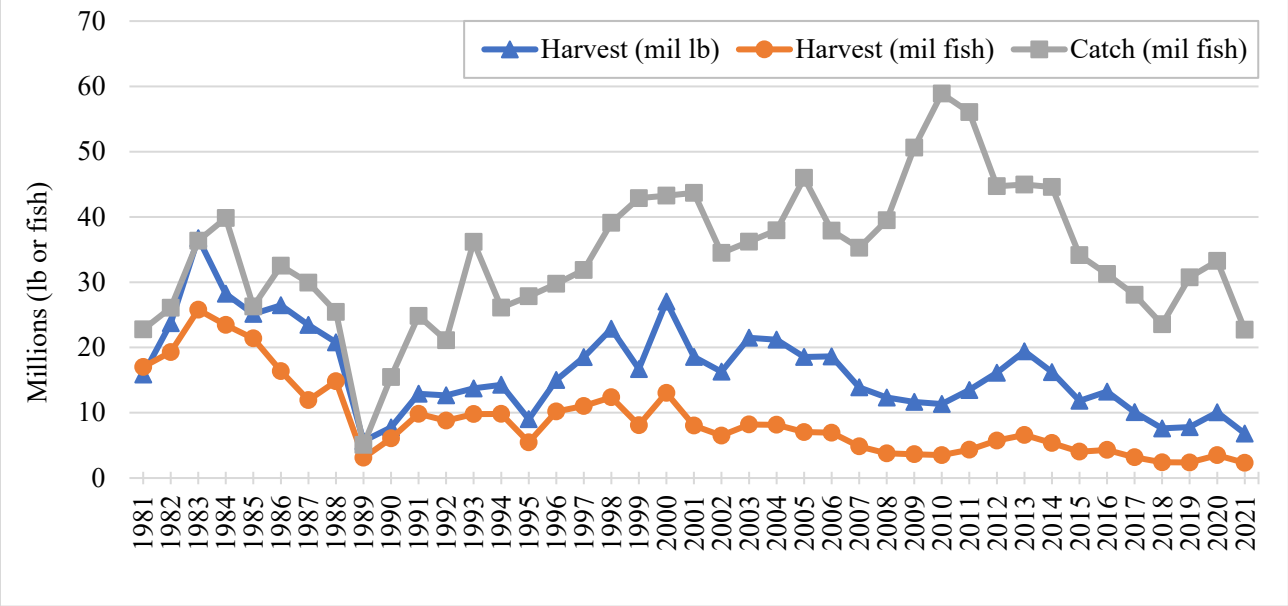

Figure 6: MRIP estimates of recreational summer flounder harvest in numbers of fish and pounds and catch in numbers of fish, ME - NC, 1981-2021.[5]

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2021, 904 vessels held summer flounder federal party/charter permits.[6] Many of these vessels also hold recreational permits for scup and black sea bass.

On average, an estimated 77% of the recreational landings (in numbers of fish) occurred in state waters over the past ten years (Table 8). Most summer flounder are typically landed in New York and New Jersey (Table 9).[5]

About 86% of recreational summer flounder harvest from 2019-2021 was from anglers who fished on private or rental boats. About 4% was from party or charter boats, and about 10% was from anglers fishing from shore. The revised MRIP methodology resulted in an increase in the amount of harvest estimated to occur from private and shore modes while making only minor changes to the estimates for party/charter modes, modifying the percentages attributable to each mode (Table 10).[5]

Table 8: Estimated percentage of summer flounder recreational landings (in numbers of fish) from state vs. federal waters, Maine through North Carolina, 2012-2021.[5]

Year	State ≤ 3 mi	EEZ > 3 mi
2012	86%	14%
2013	77%	23%
2014	78%	22%
2015	82%	18%
2016	79%	21%
2017	79%	21%
2018	83%	17%
2019	77%	23%
2020	61%	39%
2021	66%	34%
Avg. 2012- 2021	**77%**	**23%**
Avg. 2019 - 2021	**69%**	**31%**

Table 9: State contribution (as a percentage) to total recreational landings of summer flounder (in numbers of fish), from Maine through North Carolina, 2019-2021.[5]

State	2019	2020	2021	2019-2021 average
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	2%	2%	2%	2%
Rhode Island	9%	3%	2%	6%
Connecticut	4%	4%	5%	4%
New York	24%	21%	15%	23%
New Jersey	46%	57%	58%	50%
Delaware	4%	6%	4%	5%
Maryland	3%	2%	3%	3%
Virginia	6%	4%	10%	5%
North Carolina	1%	1%	1%	1%
Total	100%	100%	100%	100%

Table 10: The percent of summer flounder landings (in number of fish) by recreational fishing mode, Maine through North Carolina, 2012-2021.[5]

Year	Shore	Party/Charter	Private/Rental	Total number of fish landed (millions)
2012	9%	3%	88%	5.74
2013	11%	4%	85%	6.60
2014	7%	8%	84%	5.36
2015	7%	7%	86%	4.03
2016	8%	4%	89%	4.30
2017	13%	4%	83%	3.17
2018	11%	6%	84%	2.41
2019	10%	3%	87%	2.38
2020	18%	2%	80%	3.49
2021	11%	7%	82%	2.32
% of Total, 2012-2021	**10%**	**4%**	**86%**	**--**
% of Total, 2019-2021	**13%**	**4%**	**83%**	**--**

References

[1] Packer, D. B, S. J. Griesbach, P. L. Berrien, C. A. Zetlin, D. L. Johnson, and W.W. Morse. 1999. Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-151.

[2] Northeast Fisheries Science Center. 2019. Data Update for Summer Flounder.

[3] Northeast Fisheries Science Center (NEFSC). 2021. Summer Flounder Management Track Assessment for 2021. 14p. Available at: https://www.mafmc.org/s/c_2021_summer_flounder_MTA_report.pdf.

[4] Unpublished NMFS dealer data as of February 1, 2022.

[5] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed May 3, 2022. Available at: http://www.st.nmfs.noaa.gov/recreational-fisheries/index.

[6] Unpublished NMFS permit data as of February 1, 2022.

[7] Unpublished NMFS Vessel Trip Report (VTR) data as of February 1, 2022.