

2005 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR
TAUTOG
(Tautoga onitis)

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I. Status of Fishery Management Plan Development

The Atlantic States Marine Fisheries Commission (Commission) adopted the Fishery Management Plan for Tautog in March 1996. The FMP requires a minimum possession size to increase the spawning stock biomass and yield to the fishery. It also includes fishing mortality targets intended to rebuild the stocks and to prevent overfishing.

Addendum I to the FMP was approved by the Tautog Management Board on May 19, 1997. This Addendum was in response to the Board's concern about state's ability to meet the FMP's compliance schedule because of continuing problems with data deficiencies. Specifically, several states expressed concerns that the plan did not allow adequate time to determine state-specific fishing mortality rates. Further, the original FMP contained a compliance schedule that required states in the northern range of the species to implement management measures prior to states at the southern extent of the species range. Some of the members of the Management Board were concerned that the compliance dates should be consistent for states throughout the range of the species.

Addendum I required all states to implement management measures to reach the interim fishing mortality target ($F=0.24$) and a 14" size limit by April 1, 1998. Additionally it included the requirement that all states implement management measures to achieve the fishing mortality target of 0.15 by April 1, 2000. Also, the Addendum included *de minimis* requirements and corrected several typographical errors in the original FMP.

In the fall of 1999, the Tautog Management Board requested that Addendum II be developed to address: (1) adjusting the compliance schedule and (2) developing a list of issues to be considered in a subsequent addendum or amendment. Addendum II extended the compliance schedule out to April 2, 2002 instead of the earlier requirement, which mandated states to meet the target overfishing definition by April 1, 2000. Addendum II also listed a variety of issues, including (1) the chosen plan target of $F=M$ (2) clarification of the fishing mortality targets in the FMP with respect to individual state management program flexibility, (3) monitoring requirements in the FMP, (4) and data requirements to analyze management options by fishing modes within commercial and recreational fisheries.

Addendum III revised the plan target and compliance requirement $F=M=0.15$ to $F_{40\% SSB}$ and updated information pertaining to tautog habitat and the data collection compliance requirements under the Atlantic Coastal Cooperative Statistics and Tagging

Programs. Technical Addendum #1 to Addendum III corrected a typographical error in Addendum III to the FMP.

II. Status of Stocks

Tautog is a long-lived species, with individuals over age 30 reported from Rhode Island and Connecticut. Most females mature (80%) at age 3. Natural mortality (M) has been estimated at $M=0.15$ for males and $M=0.2$ for females.

An assessment was most recently prepared in 2001, using data from 1981 through 2000. A coastwide estimate of fishing mortality rates was derived with a VPA using fisheries dependent and independent data (independent data from Massachusetts through New Jersey only). Results indicate that fishing mortality rates have declined from a high of 0.71 in 1993 to 0.41 in 2000. Since the 2000 fishing mortality rate exceeds the final plan target of $F_{40\%SSB}$, which is currently $F=0.29$, tautog are overfished and overfishing is occurring. Abundance indices through 2000 show a slight increase in biomass and recruitment in recent years. A new peer-reviewed stock assessment will be available in the spring of 2006.

For states south of NJ, a lack of data hampers efforts to estimate current fishing mortality rates and tautog abundance at a regional level of assessment. Most states are collecting additional age and growth data with a goal of obtaining reliable F estimates.

III. Status of Fishery

The tautog fishery is primarily recreational, extending from Maine to Virginia. Most landings occur in state waters between Cape Cod and the Chesapeake Bay. Tautog have historically ranked seventh in recreational species sought in both the North Atlantic and Mid-Atlantic sub-regions. Tautog are most frequently caught in the spring and fall months, although some Mid-Atlantic Region fishermen pursue them year-round and there is an active fishery off the Virginia Coast in winter.

Recreational landings declined overall from 1987 to 1998, and have shown a slight overall increase since 1999 (Figure 1). From 1981-2004, most recreationally landed tautog were caught in Massachusetts, New York, and New Jersey, with those states accounting for 64 % of the average recreational harvest by weight over the time series (Table 1).

Commercial landings averaged 12% of total landings in 2003. Commercial interest in tautog has increased in response to higher market prices, exceeding \$1.00/lb at times. Most commercial landings are taken by otter trawls, with gillnets, handlines, fish pots, and lobster traps all accounting for a share. Commercial landings for 2004 were not available at the time this report was prepared.

Commercial landings fluctuated without trend around the 200,000-pound mark from 1950 until 1980. Landings began to increase in the early 1980's and reached a high of 1,157,100 pounds in 1987 (Figure 2). From 1986 through 1992 landings were sustained at around a million pounds. A decline in landings occurred between 1991 and 1999. Landings have since increased slightly over the most recent five-year period. Commercial landings were 266,729 pounds in 2003. Table 2 shows commercial landings from 1981 - 2003.

Declines in landings of both user groups through 1999 can be attributed to declining stock conditions. Stabilized to slightly increased landings since 1999 coincide with more rigorous management measures and an increase in at least some survey abundance indices.

IV. Status of Assessment Advice

Tautog stock status was last reviewed by the Technical Committee through an updated coastwide VPA run performed in the summer of 2001. After reviewing all results, the Technical Committee recommended that fishing mortality rates be reduced by 29% (or exploitation rates by 25%) to meet the final plan target and to begin rebuilding the stock. The next stock assessment will be available in 2006.

V. Status of Research and Monitoring

Addendum III requires all states to collect data to continue support of a coast-wide stock assessment until such time that there are sufficient data and analyses to allow for regional or redefined regional assessment approaches. As such, states are required to collect and report commercial and recreational catch estimates, a suitable time series of fisheries independent indices of abundance as determined by the Tautog Technical committee, and 200 age and length samples per state, within the range of lengths commonly caught by the fisheries.

Length and abundance data are collected in trawl surveys in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland and Virginia. New York, Rhode Island and New Jersey are collecting length and age data from party boats. Age/length information is also being collected in Massachusetts, Connecticut, Virginia, and Maryland.

Connecticut conducted a hook and release mortality study in 1993 and 1995; Virginia conducted a study in 1995. Results indicate about a 2.5% discard mortality rate. This rate was used in the last assessment.

A genetic study of tautog from Rhode Island evaluated genetic variation patterns through DNA analysis to determine if tautog is from one or multiple genetic stocks. This study could not determine that tautog populations from Rhode Island to Virginia were from multiple stocks (Orbacz, Gaffney 1999).

VI. Status of Management Measures and Issues

Addendum III to the Interstate Fishery Management Plan for Tautog includes commercial and recreational minimum sizes and catch restrictions to reach the target fishing mortality rate at 40% SSB. The target fishing mortality rate is $F_{40\%SSB}$, which is currently estimated at 0.29. States were required to reduce fishing mortality in the recreational fishery to achieve the target by April 1, 2003. Reductions were achieved through possession limits, seasons, or a combination of both. States may implement more restrictive regulations in either the recreational or commercial fishery at any time.

VII. Current State-by-State Implementation of FMP Compliance Requirements

The Tautog Plan Review Team reviewed the states' annual compliance reports during September of 2005. Annual required monitoring programs as well as all commercial and recreational management measures (including minimum size) for tautog are considered compliance elements in Addendum III to the FMP. The Plan Review Team recommended that all states and jurisdictions be found in compliance for the 2004 fishing year.

According to Addendum I, a state must prove that its commercial landings in the most recent year for which data is available did not exceed the greater of 10,000 pounds or 1% of the coastwide commercial landings to qualify for *de minimis* status. States must request *de minimis* status each year and requests for *de minimis* status will be reviewed by the Tautog Plan Review Team as part of the annual FMP review process. The states of Delaware (3,816 lbs – 2003) and North Carolina (98 lbs – 2003) meet these criteria for calendar year 2004, and both states have formally requested *de minimis* status for the 2005 fishing year. These calculations are based on 2003 commercial landings, the most recent year for which coastwide total landings information is available.

VIII. Prioritized Research Needs (Updated September 2005)

1. Increased catch and discard length sampling from the commercial/recreational fishery for all states from Massachusetts through Virginia.
2. Increase MRFSS sampling levels to improve recreational catch estimates by state and mode. Current sampling levels are high during times of the year when more abundant and popular species are abundant in catches, but much lower than in early spring/late fall when tautog catches are more likely.
3. Establish standardized state-by-state long-term fisheries independent surveys to monitor tautog abundance and length-frequency distributions, and to develop young-of-the-year indices.

4. Continue and expand biological sampling of recreational and commercial catches, by mode and gears respectively (Including weights, lengths, sex, maturity, and especially age from hard parts) at minimum levels as established by the FMP.
5. Collect effort data for determining commercial and recreational CPUE.
6. Define the status (condition and extent) of optimum or suitable juvenile habitats and trends in specific areas important to the species.
7. Determine pot and trap escape vent dimensions needed to release tautog over a range of sizes.
8. Explore possible regional and local genetic differences (stock differentiation) and relate these to recruitment, growth, exploitation rates, and habitat differences. These differences can help support appropriate region-specific management strategies.
9. Define the specific spawning and pre-spawning aggregating areas and wintering areas of juveniles and adults used by all major local populations, as well as the migration routes used by tautog to get to and from spawning and wintering areas and the criteria or times of use.
10. Define local and regional movement patterns and site fidelity in the southern part of the species range. This information may provide insights into questions of aggregation vs. recruitment to artificial reef locations. (Note: This work is currently being conducted as a Masters Thesis at VIMS)
11. Collect basic sociocultural data on tautog user groups including demographics, location, and aspects of fishing practices such as seasonality.
12. Conduct studies in areas where the availability of primary prey, such as blue mussels or crabs, is dependent on annual recruitment, the effect of prey recruitment variability be investigated as a factor in tautog movements (to find better prey fields), mortality (greater predation exposure when leaving shelter to forage open bottom), and relationship between reef prey availability/quality on tautog condition/fecundity.
13. Define the susceptibility of juveniles to coastal and anthropogenic contamination and resulting effects. The synergistic effects of leaked fuel, bilge water, treated pilings, and antifouling paints on tautog health should also be studied.
14. Confirm that tautog, like cunner, hibernate in the winter, and in what areas and temperature thresholds, for how long, and are there special habitat requirements during these times that should be protected or conserved from damage or disturbance. This information will aid in understanding behavior variability and harvest availability.

15. Define larval diets and prey availability requirements. This information can be used as determinants of recruitment success and habitat function status. Information can also be used to support aquaculture ventures with this species.
16. Reexamine the source of offshore eggs and larvae (in situ or washed out coastal spawning).

Table 1. Tautog recreational harvest (A + B1) in pounds¹ by state, 1981-2004.

Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division, Silver Spring, MD.

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1981	790,611	664,568	242,339	1,496,039	161,423	6,585	10,295	742,653	536	4,115,049
1982	3,226,869	777,931	610,608	1,674,949	1,241,155	428,036	90,644	271,920	15,849	8,337,961
1983	1,837,263	615,592	458,581	1,124,844	414,956	4,438	6,550	1,267,164	20,143	5,749,531
1984	733,876	1,809,822	733,711	541,805	717,260	95,739	79,110	669,870	0	5,381,193
1985	328,042	277,385	471,185	2,034,903	741,656	144,858	1,107	298,796	7,154	4,305,086
1986	7,862,585	2,042,584	838,345	2,833,206	2,132,571	264,744	10,049	918,139	4,173	16,906,396
1987	1,751,372	507,424	1,106,606	2,288,075	2,130,955	387,075	266,093	442,750	1,660	8,882,010
1988	2,255,930	612,123	610,172	2,380,285	1,331,832	249,803	446,947	1,410,003	4,605	9,301,700
1989	1,076,365	296,889	1,038,217	1,018,016	1,289,186	743,338	78,391	806,337	9,427	6,356,166
1990	895,326	389,579	199,999	1,980,289	1,256,488	142,627	59,720	229,442	2,582	5,156,052
1991	798,890	1,007,548	648,633	2,352,646	2,189,144	354,497	106,222	619,215	24,546	8,101,341
1992	1,668,485	656,713	1,048,638	1,199,558	2,485,693	183,855	159,730	255,996	8,675	7,667,343
1993	752,598	389,734	531,024	1,800,794	1,361,612	217,881	105,232	758,409	75	5,917,359
1994	373,188	328,668	417,439	585,037	330,551	152,034	177,358	1,101,129	2,707	3,468,111
1995	309,224	237,094	402,617	369,643	1,722,714	793,339	115,993	613,348	3,084	4,567,056
1996	397,284	248,840	245,817	193,046	1,123,173	158,751	26,484	778,314	10,933	3,182,642
1997	166,042	301,109	84,297	331,530	483,639	204,419	182,995	319,257	46,107	2,119,395
1998	96,694	316,338	231,622	208,743	41,431	257,347	27,648	273,516	5,972	1,459,311
1999	363,472	223,762	61,142	761,447	511,672	358,329	37,677	203,249	11,940	2,532,690
2000	442,816	203,601	58,475	258,099	1,812,959	373,580	56,127	188,187	3,194	3,397,038
2001	502,248	165,380	63,157	171,928	1,482,613	159,961	72,357	127,556	3,413	2,748,613
2002	521,611	205,654	447,139	2,137,521	858,046	646,664	56,178	44,707	4,447	4,921,967
2003	177,878	469,251	596,302	380,263	117,558	167,314	17,077	281,289	20,512	2,227,444
2004	118,438	516,315	514,977	1,185,453	183,185	424,405	15,798	484,293	36,151	3,479,015
Average	1,143,629	552,663	485,877	1,221,172	1,088,395	288,317	91,908	546,064	10,329	5,428,353

¹ Caution – MRFSS weight estimates are minimums and may not reflect the actual total weight landed or harvested.

Table 2. Tautog commercial landings in pounds by state, 1981-2003.

Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division, Silver Spring, MD.

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1981	103,000	69,800	20,500	81,400	54,400	1,000	1,200	700	0	332,000
1982	69,300	86,300	21,200	90,400	148,200	800	100	2,600	656	419,556
1983	57,600	142,600	33,500	88,400	100,600	800	-	1,700	319	425,519
1984	68,100	334,700	32,700	102,500	129,700	1,400	2,600	1,200	4,715	677,615
1985	63,200	403,200	49,900	84,500	125,500	3,200	2,400	1,639	531	734,070
1986	165,800	363,100	103,900	201,300	100,700	300	2,600	1,800	1,006	940,506
1987	250,000	420,500	159,200	225,200	95,200	500	3,800	2,700	0	1,157,100
1988	277,100	328,900	112,100	255,000	88,000	600	6,100	2,800	214	1,070,814
1989	352,507	214,928	99,706	285,422	51,842	-	3,978	7,387	531	1,016,301
1990	289,074	211,084	82,008	181,543	99,112	500	4,599	5,151	1,079	874,150
1991	354,346	371,597	54,000	226,413	93,022	1,300	3,164	5,058	1,211	1,110,111
1992	292,291	359,767	65,700	169,011	116,332	200	4,058	4,389	424	1,012,172
1993	160,336	201,593	44,000	89,467	153,474	300	1,432	2,660	351	653,613
1994	37,399	130,719	43,000	71,375	162,641	400	1,718	10,315	1,135	458,702
1995	35,298	95,019	20,466	72,879	116,123	600	4,416	27,701	929	373,431
1996	32,579	64,876	33,327	105,466	89,435	-	3,622	26,137	452	355,894
1997	64,275	39,601	14,519	78,228	49,726	841	7,663	25,471	623	280,947
1998	91,424	20,327	6,905	69,004	42,426	1,715	5,682	14,770	2,173	254,426
1999	75,685	26,107	12,961	38,033	27,392	844	6,489	20,901	728	209,140
2000	96,001	43,719	8,504	38,839	39,636	272	3,896	14,794	674	246,335
2001	84,330	56,065	22,259	62,795	60,152	287	4,591	14,587	414	305,480
2002	148,073	50,007	26,781	60,805	36,605	629	5,101	22,834	705	351,540
2003	86,205	54,650	40,784	72,264	65,186	3,816	5,213	10,705	98	266,729
Average	141,475	177,790	48,170	116,437	88,931	883	3,671	9,913	825	588,094

Figure 1. Tautog recreational harvest (A + B1) in pounds of fish, 1981-2004. Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division, Silver Spring, MD.

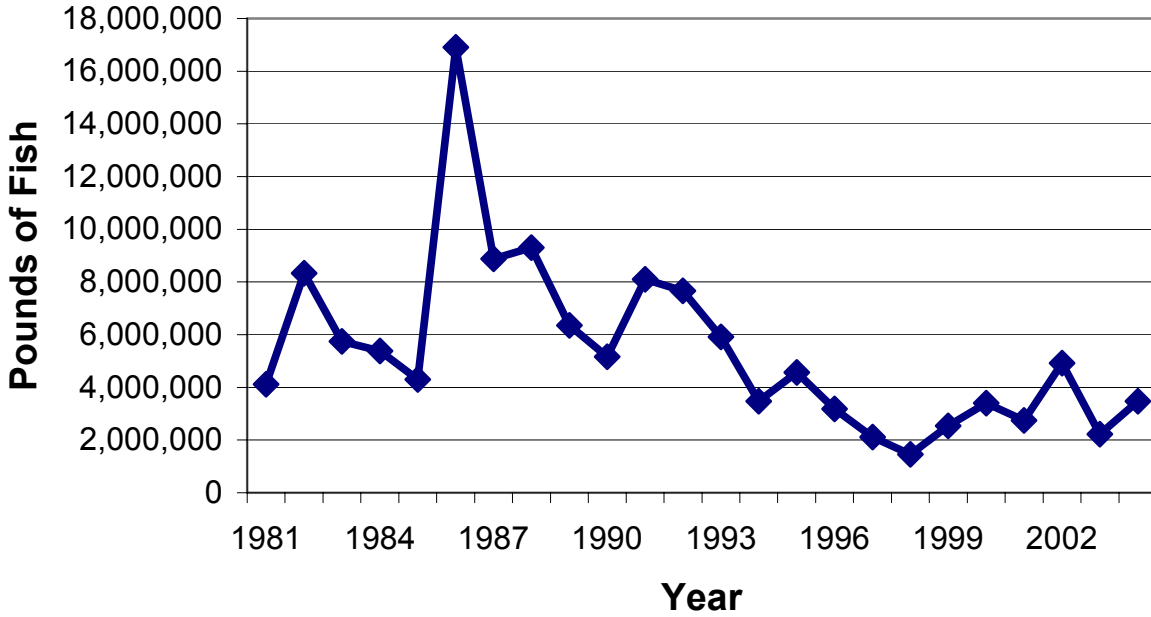
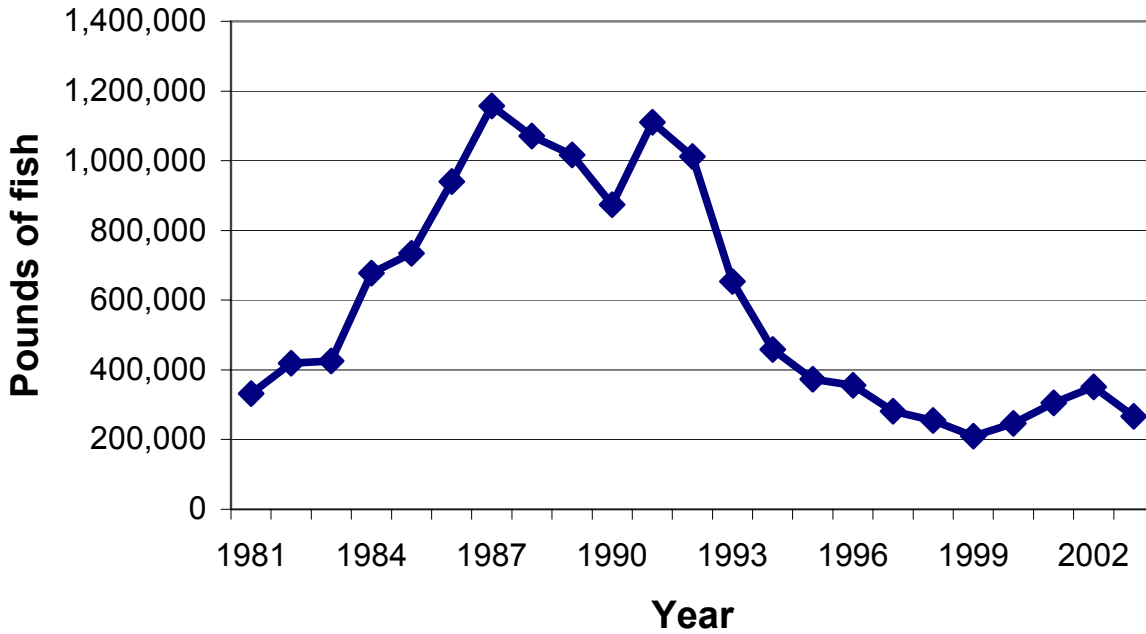


Figure 2. Tautog commercial landings in pounds of fish, 1981-2003. Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division, Silver Spring, MD.



2004 Commercial Tautog Regulations

STATE	SIZE LIMIT	POSSESSION LIMITS	SEASONS	QUOTA	GEAR RESTRICTIONS
Massachusetts	16"	40	April 15-May 15 July 11-October 31		Yes
Rhode Island	16"	10	April 15-May 30	12,856 lbs	Yes
	16"	10	August 1-September 15 October 15-December 31	12,856 lbs	
Connecticut	14"	a	January 1-April 30 June 15-December 31		Yes
New York	14"	b	some gears		Yes
New Jersey	14"		April 15-June 30 November 1-January 15	103,000lbs	Yes
Delaware	14"/15"	See recreational	See Recreational		
Maryland	14"	5			Yes
Virginia	14"		Jan 1- April 30 Sept 1- Dec 31		Yes

2004 Recreational Tautog Regulations

STATE	SIZE LIMIT	POSSESSION LIMITS	SEASONS
Massachusetts	16"	3	-
Rhode Island	16"	3	May 1-October 14
	16"	10	October 15-December 31
Connecticut	14"	4 (daily)	January 1-April 30
	14"	4 (daily)	June 15- September 7
New York	14"	4 (daily)	September 22-December 13
	14"	10	October 1-May 31
New Jersey	14"	4	January 1-May 31
	14"	1	June 1-November 14
Delaware	14"	8	November 15-December 31
	14"	10 ^c	Jul 1 - Mar 31
Maryland	15"	3	Apr 1 - Jun 30
	14"	5	January 1-November 30
Virginia	14"	7	Open

- a The trawl fishery has a possession limit of 75 fish, the commercial hook, fish pot, trap net, fyke net, and gill net fisheries the possession limit is 25 fish, and in the lobster pot fishery the possession limit is 10 fish. Holders of Connecticut Marine Pound Net Registration may possess up to twelve fish year round except that during the May 1 through June 14 closed season all female tautog must be released without avoidable injury. All possession limits are daily limits.
- b New York has a 25 fish vessel trip limit for commercially caught tautog, except only 10 per vessel are allowed when lobster pot gear and more than six lobsters are in possession.
- c Delaware has a 28 day closure from September 1 through September 28.