2007 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

WEAKFISH
(Cynoscion regalis)

2006 FISHING YEAR

Prepared by
Nichola Meserve (ASMFC)

Weakfish Plan Review Team
Joe Cimino, Virginia Marine Resources Commission
Rick Cole, Delaware Division of Fish and Wildlife
Wilson Laney, United States Fish and Wildlife Service
Nichola Meserve, Atlantic States Marine Fisheries Commission, Chair
Lee Paramore, North Carolina Division of Marine Fisheries
Charlie Wenner, South Carolina Department of Natural Resources

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I. Status of the Fishery Management Plan

The Atlantic States Marine Fisheries Commission (Commission) adopted its first Fishery Management Plan (FMP) for Weakfish in 1985. Amendment 1 to the FMP (1992) unsuccessfully aimed to improve the status of weakfish. Amendment 2 (1995) resulted in some improvement to the stock, but several signs indicated that further improvement was necessary. Thus, Amendment 3 (1996) was implemented to increase the sustainability of the fishery. Addendum I to Amendment 3 was approved in 2000 in order to extend the existing management program until the Weakfish Management Board (Board) could approve Amendment 4.

Weakfish are currently managed under the guidelines contained in Amendment 4 (2002). The Commission adopted Addendum I to Amendment 4 (2005) to replace the biological sampling program in section 3.0 of Amendment 4. In response to a significant decline in stock abundance and increasing total mortality since 1999, the Board approved Addendum II to Amendment 4 (2007) to reduce the recreational creel limit and commercial bycatch limit, and set landings levels that when met will trigger the Board to re-evaluate management measures. Addendum III to Amendment 4 (2007) altered the bycatch reduction device certification requirements in Section 4.2.8 of Amendment 4 for consistency with the South Atlantic Fishery Management Council's Shrimp FMP.

The goal of Amendment 4 is to utilize interstate management so that Atlantic coastal weakfish recover to healthy levels that will maintain commercial and recreational harvest consistent with self-sustaining spawning stock and to provide for restoration and maintenance of essential habitat (ASMFC 2002). The management objectives are to:

1) establish and maintain an overfishing definition that includes target and threshold fishing mortality rates and a threshold spawning stock biomass to prevent overfishing and maintain a sustainable weakfish population;
2) restore the weakfish age and size structure to that necessary for the restoration of the fishery;
3) return weakfish to their previous geographic range;
4) achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit, including states' waters and the federal EEZ;
5) promote cooperative interstate research, monitoring and law enforcement necessary to support management of weakfish;
6) promote identification and conservation of habitat essential for the long term stability in the population of weakfish; and
7) establish standards and procedures for both the implementation of Amendment 4 and for determination of states' compliance with provisions of the management plan.

Amendment 4 defines overfishing through the use of target and threshold fishing mortality rates ($F_{30\%}$=F=0.31 and $F_{20\%}$=F=0.50, respectively) and a threshold spawning stock biomass ($SSB_{20\%}$=31.8 million pounds). In order to achieve annual fishing mortality targets, recreational harvest of weakfish is constrained by a combination of size limits and possession limits, and commercial harvest by size limits, gear restrictions, and possibly season and/or area closures. After approval, states may implement alternative management plans with conservation equivalency.

Weakfish are managed under this plan as a single stock throughout their coastal range. All Atlantic coast states from Massachusetts through Florida and the Potomac River Fisheries Commission have a declared interest in weakfish. See Table 1 for a summary of state-by-state regulations. Responsibility for the FMP is assigned to the Weakfish Management Board, Plan Review Team, Technical Committee, Stock Assessment Sub-Committee, and Advisory Panel.

II. Status of the Stock

A weakfish stock assessment of data through 1998 was conducted in 1999 and peer reviewed at the 30th Northeast Regional Stock Assessment Workshop (NMFS 2000). This report indicated that weakfish were at a high level of abundance and subject to low fishing mortality rates. This assessment was updated in 2002 with data through 2000 (Kahn 2002). The assessment suggested that the management measures put in place in Amendment 3 had resulted in positive trends for the weakfish population. However, the report also noted that the absolute magnitude of impact should be viewed with caution given the uncertainty of the fishing mortality and spawning stock biomass estimates for the most recent year of the assessment (which is often the case with final year estimates).

While these traditional single species assessments were generating high stock size estimates, the recreational and commercial landings of weakfish along the Atlantic coast plummeted to all-time lows between 1999 and 2003. This dichotomy of assessment results and fishery performance lead the Weakfish Technical Committee to consider less traditional assessment techniques in its most recent stock assessment covering the period of 1982-2003 (Kahn and others 2006).

Results from the alternative approaches revealed that a large rise in natural mortality starting in the mid-1990s largely caused weakfish biomass and size structure to decline greatly by 2003 (Figure 1). These declines could not be attributed to a slight rise in fishing mortality, which had fallen to moderate levels by 1994 due to conservative management measures. The Technical Committee noted that the rapid decline in biomass starting in the late 1990s was reminiscent of rapid transitions between extended periods of high or low commercial landings dating back to the late 1920s. In theory, these rapid changes could reflect an underlying environmental driver, the effect of which could have been accelerated by high fishing or predation rates.

Therefore, the Technical Committee developed and tested specific hypotheses to evaluate candidate predator/competitors (striped bass, summer flounder, bluefish, spiny dogfish and Atlantic croaker), forage species (Atlantic menhaden, bay anchovy, and spot), environmental factors (water temperature and North Atlantic Oscillation index), high bycatch losses, and overfishing (Kahn and others 2006, Uphoff 2006). Insufficient forage, especially Atlantic menhaden, and increased predation by striped bass emerged as leading hypotheses supporting rising natural mortality as cause for stock decline (Figure 2), but contributions by other species or factors may not have been completely detected or tested. While this result does not provide much leverage for recovery by managing the fishery alone, projections did indicate that cuts in fishing mortality are needed for timely recovery if natural mortality declines.

While this assessment was not upheld by an external peer review panel, the Board accepted for management use five conclusions from the report: 1) the stock is declining; 2) total mortality is increasing; 3) there is not much evidence of overfishing; 4) something other than fishing mortality is causing the decline in the stock; and 5) there is a strong chance that regulating the

fishery will not, in itself, reverse stock decline. The Commission has therefore labeled the status of weakfish as: depleted, overfishing not occurring.

III. Status of the Fishery

At 1.97 million pounds, the total coastwide landings of weakfish in 2006 were the lowest on record from at least 1982 (Table 2). Total landings dropped 29% from the 2005 landings of 2.76 million pounds, and 74% from the ten-year (1996-2005) average of 7.55 million pounds. The commercial fishery (1.11 million pounds) accounted for 56% of the total 2006 landings by pounds, and the recreational fishery (0.86 million pounds) accounted for 44% (Table 2).

Commercial Fishery

Commercial data are cooperatively collected and compiled by the National Marine Fisheries Service (NMFS) and state fishery agencies from state mandated trip-tickets, landing weigh-out reports from seafood dealers, federal logbooks, shipboard and portside interviews, and biological sampling of catches. Landings from the NMFS Fisheries Statistics Division are used within this report unless a state reports alternative values in its compliance report to the Commission, in which case these values are used (see sources in Table 3).

Between 1982 and 2006, coastwide commercial weakfish landings have ranged from a high of 21.1 million pounds in 1986 to a low of 1.1 million pounds in 2006 (Table 3). Since 1988, the overall trend is declining, except for during the period of 1990-1998 when landings hovered between 6.1 and 9.1 million pounds (Figure 3).

North Carolina, Virginia, and New Jersey dominated the 2006 commercial weakfish landings, as they have done since 1982 (Table 3, Figure 4). North Carolina has annually landed the most weakfish since 1982 and Virginia has consistently landed the second most since 1993.

The dominant commercial gears used include gill nets, otter trawls, pound nets, and haul seines (about 45%, 25%, 10% and 9%, respectively, of the total commercial landings in 2006; NMFS 2007). There has been a shift in the dominant source of landings from trawls in the 1950s-1980s to gill nets in the 1990s-present. The majority of commercial landings occur in the fall and winter months, presumably as the fish congregate to migrate to over-wintering grounds in the South Atlantic (Hogarth and others 1995).

Recreational Fishery

Recreational catch statistics are collected by the NMFS. Effort data is collected through telephone interviews. Catch expansions are based on angler interviews and biological sampling conducted by trained interviewers stationed at fishing access sites. All recreational data in this report are from the NMFS Fisheries Statistics Division.

Between 1982 and 2006, coastwide recreational landings have ranged from a high of 11.7 million pounds in 1983 to a low of 847,478 pounds in 2003 (Table 4). Landings averaged 7.9 million pounds from 1982-1988, before falling in 1989 to 2.1 million pounds. Annual recreational landings fluctuated between 1.0 and 4.1 million pounds from 1990 to 2002, before falling to the time series low in 2003 (Figure 3). The 2006 landings are the second lowest recorded at 857,320 pounds (682,553 fish; Tables 4 and 5). The number of fish released alive by

anglers has remained above 1 million fish since 1993, peaking at over 5 million in 1996, and decreasing to 2.3 million fish in 2006 (Table 6, Figure 5).

In the 1980s, New Jersey, Virginia, and Maryland dominated the recreational harvest of weakfish; in the 1990s, New Jersey, Delaware, Maryland, and Virginia; and in the 2000s, New Jersey, North Carolina, and Virginia (Tables 4 and 5). In 2006, New Jersey anglers landed 66% of the coastwide harvest, followed by North Carolina anglers with 16% and Virginia anglers with 6% (by pounds; Figure 6).

The recreational fishery catches weakfish using live or cut bait, jigging, trolling, and chumming, mostly in state waters. The vast majority of recreationally harvested fish (about 90%) are caught from private or rental boats, with the remaining 10% being harvested from shore and charter and party boats (NMFS 2007). Recreational harvest typically peaks in the warmer months (May through October) when effort tends to be greatest (NMFS 2007).

IV. Status of Assessment Advice

Besides virtual population analyses, the Weakfish Stock Assessment Subcommittee has been exploring other approaches for future assessments including using a separable virtual population analysis and relative exploitation. The most recent weakfish stock assessment used a relative exploitation model due to the inconsistency between VPA results and recent landings trends. The Board has approved the continued exploration of multiple approaches for the next weakfish stock assessment, scheduled for peer review in the spring of 2009 through the Northeast Regional Stock Assessment Workshop process. The Technical Committee will also be developing additional qualitative techniques for tracking management progress in the future, as tasked by the Board in 2006.

V. Status of Research and Monitoring

Fishery-Independent Data

Young-of-the-year indices of relative abundance are provided by Connecticut, New York, Delaware, Maryland, Virginia, North Carolina and Florida. Rhode Island, Connecticut, Delaware, North Carolina, and Florida provide age-1 or 1+ indices of relative abundance. The NMFS also produces an age-structured index for the Mid-Atlantic coast, while SEAMAP produces another for the South Atlantic Coast. See Table 9 for the indices provided in the 2007 compliance reports.

Fishery-Dependent Data

The coastal states and the NMFS collect data on commercial and recreational landings. Addendum I to Amendment 4 requires states to collect numbers of otoliths and lengths based on the magnitude of their fisheries. Each spring, the states are required to submit sampling plans to collect the required biological samples. Each fall, through the compliance reports, the states are required to provide the actual sampling levels completed. If the Board finds that a state does not implement the sampling program, the state may be prohibited from harvesting weakfish until it develops, and the Board approves, a plan to collect the required samples the following year. See Section VII for more information.

VI. Status of Management Measures and Issues

Fishery Management Plan

Amendment 4 and Addendum I to Amendment 4 provided the management requirements for 2006. The Board approved Addendum II to Amendment 4 on February 1, 2007 with an implementation date of October 29, 2007. Each state affirmed that it implemented the requirements of Addendum II by the required date in its 2007 compliance report (see Table 1). The Board approved Addendum III to Amendment 4 on May 8, 2007 to be effective immediately. No additional amendments of addenda are under development.

De Minimis Status

Amendment 4 permits states to request *de minimis* status if, for the last two years, their combined average commercial and recreational landings (by weight) constitute less than 1% of the coastwide commercial and recreational landings for the same two year period. The *de minimis* threshold for 2006, calculated with 2005 and 2006 landings data, is 23,667 pounds.

Five states requested *de minimis* status in their 2007 compliance reports: Florida, Georgia, South Carolina, Connecticut, and Massachusetts. Each of these states has had a previous *de minimis* request approved. Florida (0.95%), Georgia (0.23%), Connecticut (0.28%), and Massachusetts (0.18%) are below the 1% landings criteria. South Carolina (2.8%) acknowledges that it does not technically qualify, but asks for a one-year continuation of its *de minimis* status to allow recreational harvest estimates to become available for 2007. South Carolina contends that the 2004 and 2005 MRFSS estimates are incorrect and continue to drive the average South Carolina harvest above the *de minimis* threshold. When looking at 2006 data only, South Carolina is responsible for 0.26% of the coastwide total harvest.

The Board approved the *de minimis* requests of all five states on February 5, 2008.

Addendum II Management Triggers

Addendum II established two management triggers that require the Board to consider re-evaluating the management measures if reached. Commercial management measures are to be re-evaluated if coastwide commercial landings exceed 80% of the mean commercial landings from 2000-2004, or 2.99 million pounds. Commercial and recreational management measures are to be re-evaluated if any single state's landings exceed its five-year mean by more than 25% in any single year.

The 2006 coastwide commercial landings are 1.11 million pounds, thus the first trigger has not been exceeded. The second trigger is reached for two states: Florida and Massachusetts (Table 7). Florida's 2006 total landings are 19,227 pounds, a 43% increase over the state's 2001-2005 average total landings of 13,410 pounds. Massachusetts' 2006 total landings are 8,501 pounds, a 1575% increase over the state's 2001-2005 average total landings of 508 pounds. The PRT notes that both of these states have qualified for *de minimis* status.

The Board determined that it was not necessary to consider changes to the management plan on February 5, 2008.

VII. Implementation of FMP Compliance Requirements for 2006

Mandatory compliance elements for 2006 are provided by Amendment 4 to the Weakfish FMP, as well as Addendum I to Amendment 4.

Regulatory Requirements

Amendment 4 implemented regulatory requirements for non *de minimis* states as follows:

- Recreational management measures including maximum creel limits and minimum size limits (see Section 4.1 of Amendment 4)
- Commercial management measures including minimum size limits, minimum mesh size limits, trip limits, bycatch limits, closed seasons and areas, and bycatch reduction device requirements (see Section 4.2 of Amendment 4)

The PRT finds all states to have implemented the regulatory requirements of Amendment 4. See Table 1 for a summary of state commercial and recreational regulations in 2006.

Monitoring Requirements

Addendum I implemented monitoring requirements for non *de minimis* states as follows:

- Maintenance of at least the 2005 level of recreational sampling of individual lengths through Marine Recreational Fisheries Statistics Survey
- Collection of six individual fish lengths for each metric ton of weakfish landed commercially
- Collection of three individual fish ages for each metric ton of total weakfish landed with a maximum of 1000 ages annually per state

Table 8 provides the otolith and length collection requirements for 2006. These are based on the best available 2006 landings data provided to the Commission by the NMFS and the states. Table 8 also provides the number of otoliths and lengths collected by the states in 2006. Three states did not fulfill the requirements of Addendum I in 2006: Rhode Island (otoliths and lengths), New York (otoliths and lengths), and New Jersey (otoliths).

The PRT asked these three states to provide the reason(s) that they were unable to collect the required samples. The states responded that their sampling programs suffered from a mix of funding issues (late or non-existent), personnel shortages, and the problem of sampling from a fishery with low landings. The PRT also notes that 2006 was the first year of Addendum I's implementation and there were several administrative shortfalls: the projected sampling levels were not issued to the states, nor were the sampling plans requested. Additionally, each state has submitted a sampling plan for 2007 that has been approved by the Board.

The Board did not recommend finding any states out of compliance on February 5, 2008.

VIII. Recommendations of the Plan Review Team

Management Recommendations

- That all states continue the commercial and recreational measures, monitoring requirements, and recommendations of Amendment 4 and its addenda.

- That the Board consider if any action is necessary in response to the Addendum II management triggers.
- That the Board consider for approval the *de minimis* requests of Massachusetts, Connecticut, South Carolina, Georgia, and Florida.
- That the Board consider the compliance of Rhode Island, New York, and New Jersey with the monitoring requirements in 2006.

Research Recommendations

Biological

High Priority

- Collect catch and effort data including size and age composition of the catch, determine stock mortality throughout the range, and define gear characteristics. In particular, increase length-frequency sampling, particularly in fisheries from Maryland and further north.
- Develop latitudinal/seasonal/gear specific age length keys for the Atlantic coast. Increase sample sizes to consider gear specific keys.
- Derive estimates of discard mortality rates and the magnitude of discards for all commercial gear types from both directed and non-directed fisheries. In particular, quantify trawl bycatch, refine estimates of mortality for below minimum size fish, and focus on factors such as distance from shore and geographical differences.
- Update the scale – otolith comparison for weakfish.
- Identify stocks and determine coastal movements and the extent of stock mixing, including characterization of stocks in over-wintering grounds (e.g., tagging).
- Biological studies should be conducted to better understand migratory aspects and how this relates to observed trends in weight at age.

Medium Priority

- Define reproductive biology of weakfish, including size at sexual maturity, maturity schedules, fecundity, and spawning periodicity. Continue research on female spawning patterns: what is the seasonal and geographical extent of "batch" spawning; do females exhibit spawning site fidelity?
- Conduct hydrophonic studies to delineate weakfish spawning habitat locations and environmental preferences (temperature, depth, substrate, etc.) and enable quantification of spawning habitat.
- Compile existing data on larval and juvenile distribution from existing databases in order to obtain preliminary indications of spawning and nursery habitat location and extent.
- Continue studies on mesh-size selectivity; up-to-date (1995) information is available only for North Carolina's gill net fishery. Mesh-size selectivity studies for trawl fisheries are particularly sparse.

Low Priority

- Continue studies on recreational hook-and-release mortality rates, including factors such as depth, warmer water temperatures, and fish size in the analysis. Studies are needed in deep and warm water conditions. Further consideration of release mortality in both the recreational and commercial fisheries is needed, and methods investigated to improve survival among released fish.

- Document the impact of power plants and other water intakes on larval, post larval and juvenile weakfish mortality in spawning and nursery areas, and calculate the resultant impact to adult sock size.
- Define restrictions necessary for implementation of projects in spawning and over-wintering areas and develop policies on limiting development projects seasonally or spatially.
- Develop a coastwide tagging database.
- Develop a spawner recruit relationship and examine the relationships between parental stock size and environmental factors on year-class strength.

Social

- Assemble socio-demographic-economic data as it becomes available from ACCSP.

Economic

- Assemble socio-demographic-economic data as it becomes available from ACCSP.
- Detailed information on production activities (e.g., fishing effort and labor used by gear, vessel characteristics, areas fished, etc.) and costs and earnings for the harvesting and processing sectors.
- Information on retail sales and demand for weakfish in order to estimate the demand and economic benefits of at-home and away-from home consumption of weakfish.
- Development of bio-economic models that link the underlying population dynamics to the economic aspects of the commercial and recreational fisheries.
- Distribution of weakfish to the various markets and across states.
- Information on the margins of various stages of processing and marketing also need to be obtained; this information is necessary to construct mathematical models that can be used to estimate the economic impacts of management and regulation.
- A directed data collection program for weakfish including the same variables presently collected by NMFS in support of MRFSS and by the economic add-on. Data collected includes information on travel distance, mode of angling, expenditures, area fished, catch on previous trips, and other information.
- Development of commercial decision-making or behavioral models to explain how fishers might respond to various regulations.
- Estimation and assessment of consumer (net economic benefits to consumers) and producer (net economic benefits or profits to producers) surplus; the sum of consumer and producer surplus is a measure of the net economic value to society of a good or service.
- Development of input/output models for all states having commercial weakfish activity, or alternatively, full-blown economic impact models, which might consist of input/output models or General Equilibrium models.
- Determination of the economic value derived from recreational angling including the economic value of a catch and release fishery

Habitat

- Conduct hydrophonic studies to delineate weakfish spawning habitat locations and environmental preferences (temperature, depth, substrate, etc.) and enable quantification of spawning habitat.

- Compile existing data on larval and juvenile distribution from existing databases in order to obtain preliminary indications of spawning and nursery habitat location and extent.
- Document the impact of power plants and other water intakes on larval, post larval and juvenile weakfish mortality in spawning and nursery areas, and calculate the resulting impacts on adult stock size.
- Define restrictions necessary for implementation of projects in spawning and over-wintering areas and develop policies on limiting development projects seasonally or spatially.

XI. References

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Uphoff J. 2006. Weakfish Stock Assessment Report for Peer Review (Part 2). In: ASMFC, editors. 2006 Weakfish Stock Assessment. Washington (DC): AMSFC. p A144-A227.

X. Figures

Figure 1. Estimated weakfish biomass, relative fishing mortality (F), and relative natural mortality (M) (Kahn and others 2006)**.** Relative F is not comparable to the FMP F_{target} and $F_{threshold}$.

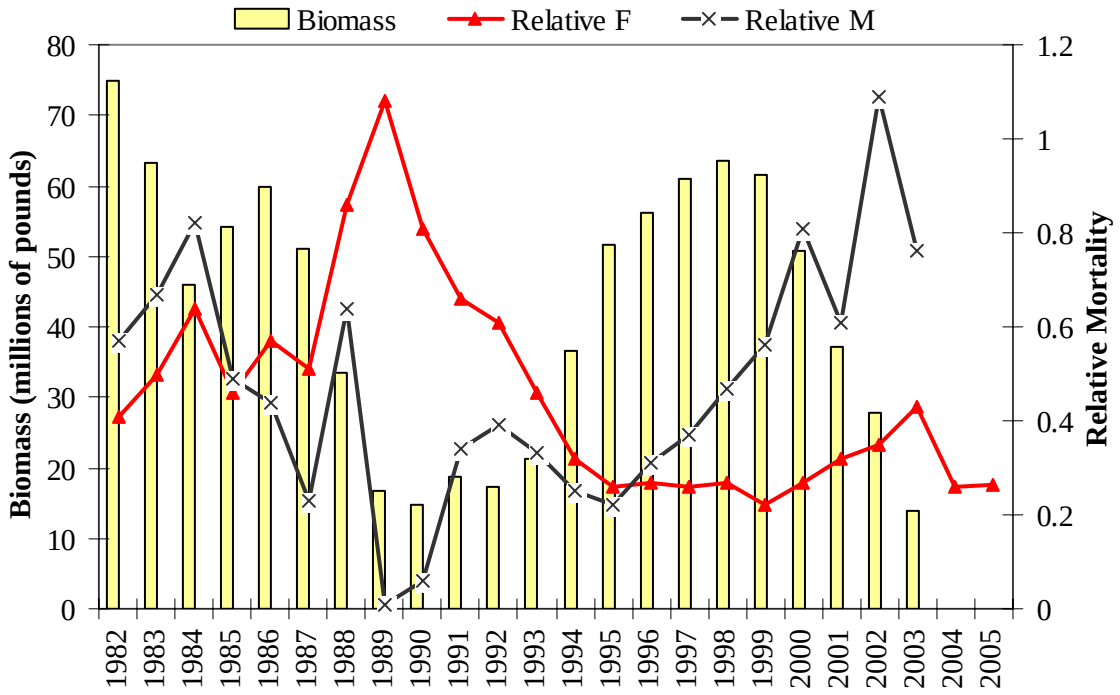


Figure 2. Food web hypothesis: weakfish commercial landings are predicted by indices for large bass and menhaden juveniles (Uphoff 2006)

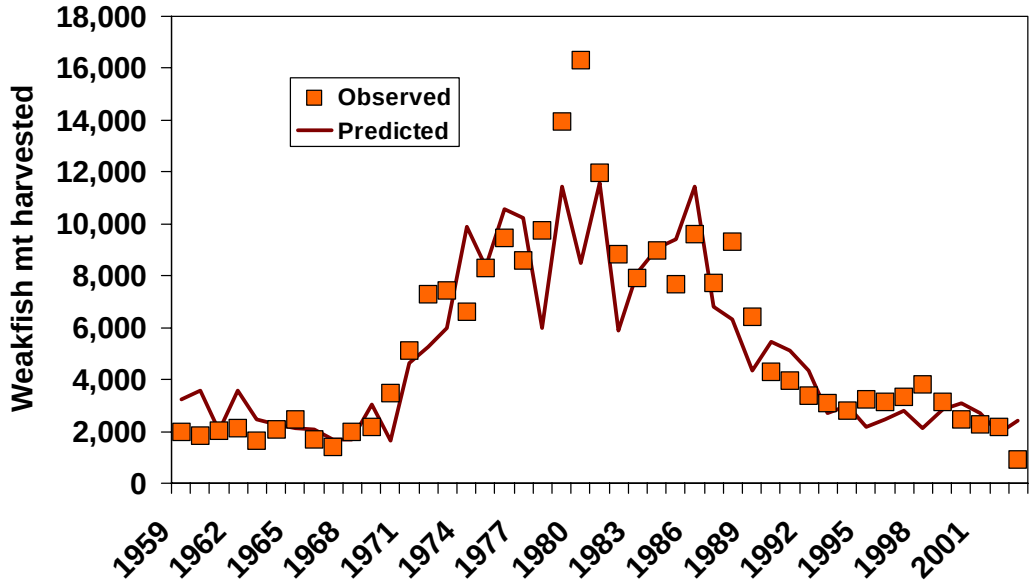


Figure 3. Commercial and recreational weakfish harvest (pounds), 1982-2006 (see Tables 3 and 4 for source information and values)

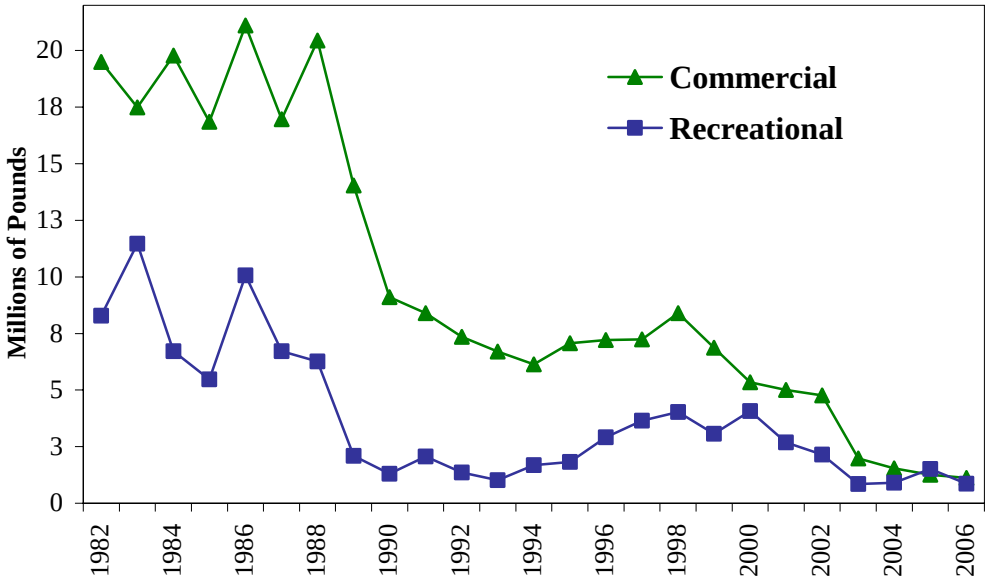


Figure 4. Commercial weakfish landings (pounds) by state, 2003-2006 (see Table 3 for source information and values)

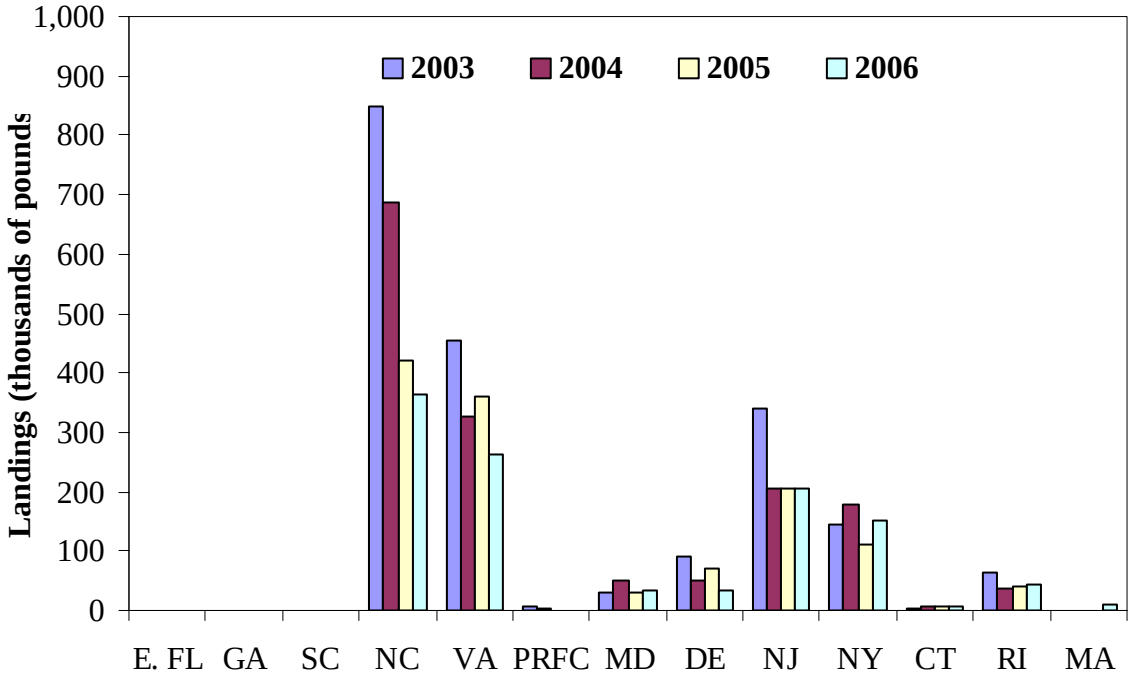


Figure 5. Recreational weakfish harvest and releases (number of fish), 1982-2006 (see Tables 5 and 6 for source information and values)

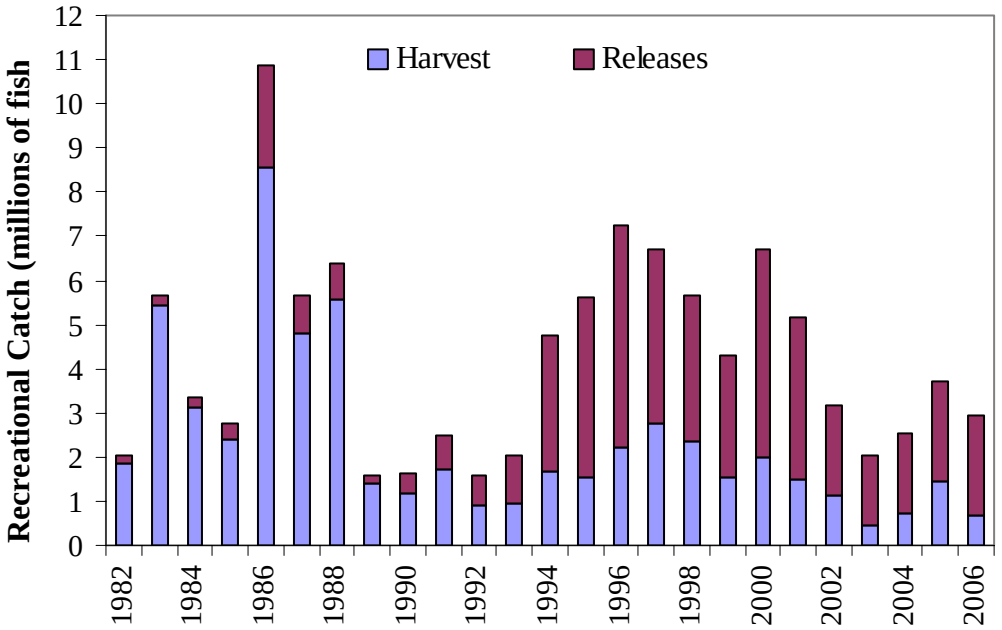
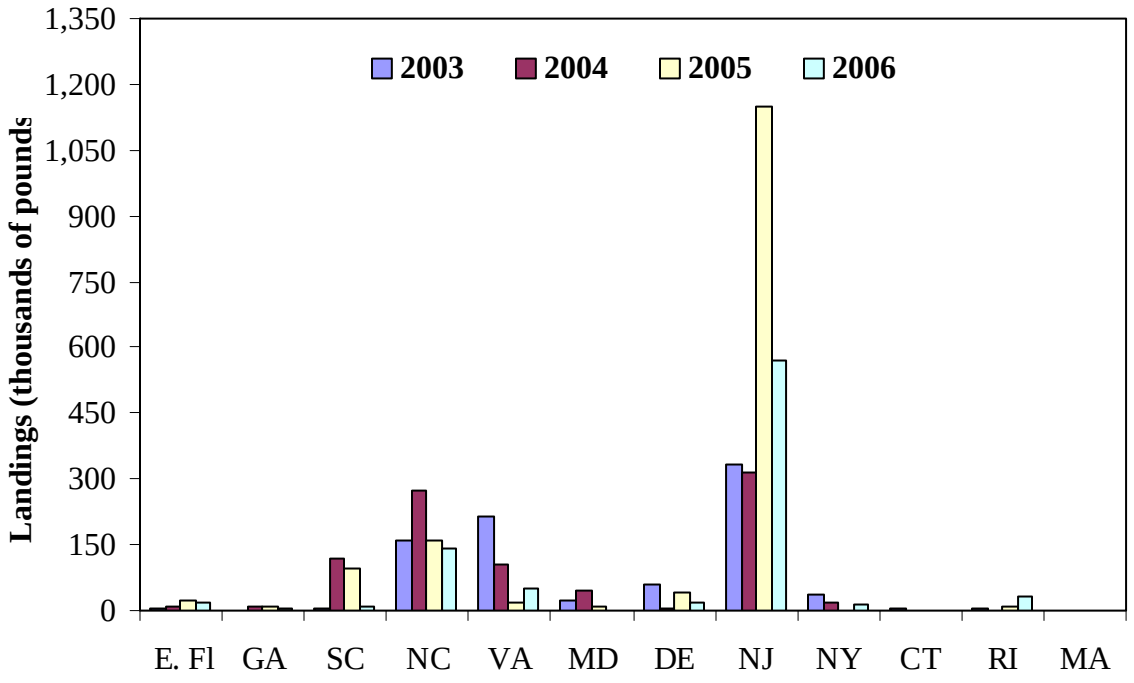


Figure 6. Recreational weakfish landings (pounds) by state, 2003-2006 (See Table 4 for source information and values)



XI. Tables

Table 1. Summary of state regulations for weakfish in 2006 and changes required by October 1, 2007

A. Commercial

State	2006 Regulations	Changes for 2007
MA	All gears: 16". Open: January 1 - December 31.	None
RI	All gears: 16"; open 6/1 - 6/30 & 8/7 - 11/8; 150 lb bycatch limit. Directed trawl: codend mesh size ≥ 4.5" diamond or 4.0" square.	Bycatch limit: 150 lbs
CT	All gears: 16"; open January 1 - December 31.	None
NY	Hook & line: 16"; open 4/1-6/24 & 8/28-11/15; 0 lb bycatch limit. All other gears: 10" filleted & 12" dressed; open 4/1-6/24 and 8/28-11/15; 300 lb bycatch limit.	Bycatch limit: 150 lbs
NJ	Gill net: 13"; open 1/1-5/20 & 10/3-10/19 & 10/27-12/31; 150 lb bycatch limit; mesh ≥ 3.25" stretched except 2.75 - 3.25" stretched allowed within 2nm for permitted fishermen doing monthly reporting. Otter trawl: 13 " from 1/1-8/31; 12" from 9/1-12/31; open 1/1-7/31 & 10/13-12/31; mesh ≥ 3.75" diamond or 3.375 square. Pound net: 13"; open 1/1/-6/6 & 7/1-12/31. Hook & line: 13", 8 fish, open 1/1-12/31.	None
DE	Gill net: 12"; open 4/1-9/30 except 34 specified days; mesh ≥ 3.125". Hook & line: 13"; unlimited possession 4 days/week, 8 fish creel limit 3 days/week.	None
MD	All gears: 12"; 150 lb bycatch limit. Gillnet mesh ≥ 3.0" stretched. Trawl mesh ≥ 3.375" square or 3.75" diamond. Ocean trawl open: 10/18-12/25. All other gears ocean: open 3/25-4/26 & 9/2-11/14. All gears Chesapeake Bay: open 8/5-9/30.	None
PRFC	All gears: 12"; open 7/28-12/31; 300 lb bycatch limit for certified pound nets with approved cull panels and 0 lb bycatch for all other gears.	Bycatch limit: 150 lbs for qualified pound netters
VA	Gill net: 12"; open 3/16-5/13 & 10/20-12/30. Pound net: no minimum size; open 4/1-4/31 & 5/23-9/12. Haul seine: no minimum size; open 4/16-6/10 & 8/21-9/24. Out of state trawl: 12"; open 4/1-9/25; codend mesh ≥ 3.0". All gears: 300 lb bycatch limit.	Bycatch limit: 150 lbs
NC	All gears 12", except long haul seines and pound nets 10". No closed seasons. Gill net: mesh ≥ 2.875” stretch. Gears not meeting minimum mesh sizes: 300 lb bycatch limit. Shrimp and crab trawl: 150 lb bycatch limit. BRDs in shrimp trawls.	Bycatch limit: 150 lbs
SC	None	None
GA	13", 6 fish	None
E. FL	All gears: 12". Gill and entangling nets prohibited in state waters. Other nets restricted to 500 ft^2 in state waters and vessels restricted to two nets and people not on vessel to one net.	None

B. Recreational

State	2006 Regulations	Changes for 2007
MA	16", 10 fish	6 fish creel limit
RI	16", 10 fish	6 fish creel limit
CT	16", 10 fish	6 fish creel limit
NY	16", 6 fish	None
NJ	13", 8 fish	6 fish creel limit
DE	13", 8 fish	6 fish creel limit
MD	13", 8 fish	6 fish creel limit
PRFC	12”, 7 fish	6 fish creel limit
VA	12", 7 fish	6 fish creel limit
NC	12", 7 fish	6 fish creel limit
SC	None	12" minimum size and 10 fish creel limit
GA	13", 6 fish	None
E. FL	12", 4 fish	None

Table 2. Comparison of commercial and recreational Atlantic coast weakfish landings (see Tables 3 and 4 for source information and state-specific landings)

Year	Recreational Landings (pounds)	Commercial Landings (pounds)	Total Pounds	% Total as Commercial
1982	8,285,323	19,493,321	27,778,644	70%
1983	11,464,965	17,485,501	28,950,466	60%
1984	6,722,648	19,777,155	26,499,803	75%
1985	5,471,699	16,849,101	22,320,800	75%
1986	10,062,170	21,112,698	31,174,868	68%
1987	6,713,896	16,964,312	23,678,208	72%
1988	6,262,058	20,444,225	26,706,283	77%
1989	2,089,772	14,035,910	16,125,682	87%
1990	1,305,042	9,101,357	10,406,399	87%
1991	2,067,203	8,397,991	10,465,194	80%
1992	1,358,722	7,345,700	8,704,422	84%
1993	1,015,819	6,702,709	7,718,528	87%
1994	1,680,002	6,133,551	7,813,553	78%
1995	1,821,434	7,066,423	8,887,857	80%
1996	2,911,837	7,217,497	10,129,334	71%
1997	3,643,395	7,239,463	10,882,858	67%
1998	4,030,736	8,402,646	12,433,382	68%
1999	3,066,655	6,866,976	9,933,631	69%
2000	4,071,182	5,347,313	9,418,495	57%
2001	2,692,164	5,008,595	7,700,759	65%
2002	2,147,562	4,771,145	6,918,707	69%
2003	847,478	1,983,532	2,831,010	70%
2004	898,781	1,540,856	2,439,637	63%
2005	1,511,459	1,251,339	2,762,798	45%
2006	857,320	1,113,528	1,970,848	56%

Table 3. Commercial landings (pounds) of weakfish by state, 1982-2006 (source information below table)

Year	E. FL	GA	SC	NC	VA	PRFC	MD	DE	NJ	NY	CT	RI	MA	Total
1982	176,203	596	443	12,052,232	1,856,920	307,230	249,297	1,294,500	2,073,500	1,257,100	25,600	176,800	22,900	19,493,321
1983	117,720	2,749	0	10,233,734	2,483,777	119,394	390,227	901,800	2,172,700	850,000	42,800	163,700	6,900	17,485,501
1984	125,799	862	0	12,990,726	2,022,123	90,166	325,279	782,400	2,751,600	484,500	31,300	167,600	4,800	19,777,155
1985	22,952	82	0	9,821,188	2,014,376	72,666	316,320	990,817	3,030,100	386,200	28,200	163,100	3,100	16,849,101
1986	24,792	75	0	14,309,372	1,886,254	116,197	337,064	723,444	3,208,600	359,900	13,700	127,600	5,700	21,112,698
1987	28,106	189	0	11,508,389	1,722,441	265,942	328,510	577,735	2,094,100	329,100	29,500	78,600	1,700	16,964,312
1988	26,225	0	0	15,091,878	1,383,218	96,765	832,636	530,603	2,332,800	124,500	2,400	19,400	3,800	20,444,225
1989	39,219	0	113	10,115,747	1,001,324	28,653	731,313	543,741	1,458,500	103,500	2,300	9,600	1,900	14,035,910
1990	31,309	33	0	5,802,159	1,192,321	18,510	416,130	625,006	968,318	19,924	1,281	24,646	1,720	9,101,357
1991	37,561	0	0	5,308,574	1,047,106	13,798	153,632	503,289	1,174,181	111,629	21,300	25,009	1,912	8,397,991
1992	38,073	0	0	4,862,551	532,482	19,961	384,999	362,042	940,695	168,087	3,500	30,277	3,033	7,345,700
1993	33,171	0	0	4,309,249	1,049,946	37,828	141,926	195,216	834,446	88,379	1,477	9,991	1,080	6,702,709
1994	40,945	0	0	3,489,929	1,264,263	28,958	223,288	262,263	695,280	99,470	11,000	18,155	0	6,133,551
1995	11,465	0	0	4,113,260	1,448,372	38,138	64,829	291,010	867,262	172,431	6,431	52,690	535	7,066,423
1996	1,024	0	0	3,977,633	1,487,069	99,493	97,068	317,317	822,041	365,307	6,937	43,522	86	7,217,497
1997	2,672	0	0	3,561,060	1,521,517	35,239	144,659	558,910	1,036,470	336,752	10,958	31,171	55	7,239,463
1998	3,425	0	0	3,354,008	1,796,487	81,744	221,048	552,947	1,804,618	496,403	14,482	77,074	410	8,402,646
1999	3,990	0	0	2,617,580	1,610,484	68,749	192,750	441,176	1,291,319	489,935	22,172	126,271	2,550	6,866,976
2000	2,143	0	0	1,869,042	1,311,298	68,574	145,918	328,269	1,071,428	352,832	7,920	189,362	527	5,347,313
2001	2,467	0	0	1,960,324	1,124,707	44,219	153,865	190,093	837,550	578,797	6,774	109,568	231	5,008,595
2002	1,310	0	0	1,828,150	1,129,158	57,818	79,734	164,064	863,088	513,977	10,223	122,781	842	4,771,145
2003	581	0	0	848,822	454,841	5,273	31,215	91,195	340,269	144,416	3,059	63,337	524	1,983,532
2004	588	0	4	685,463	325,832	1,986	50,519	48,905	204,587	178,414	6,206	38,284	68	1,540,856
2005	1,653	0	0	421,779	361,874	1,004	30,983	70,788	205,692	109,861	6,118	41,587	0	1,251,339
2006	1,333	0	0	363,078	261,619	689	32,417	34,429	206,450	152,867	7,012	45,133	8,501	1,113,528

Data Sources and Notes

FL: state-reported landings from 1985-present (NMFS-reported estimates adjusted for weakfish, sand seatrout, and hybrids). GA: NMFS-reported landings (state-reported 2006 landings are less than 200 lbs, but because less than three dealers reported, the exact total is confidential). SC: NMFS-reported landings. NC: state-reported landings from 1994-present. VA: landings from 1982-1992 are NMFS-reported minus the PRFC-reported harvest landed in VA; state reported landings from 1993-present (exclude Potomac River harvest). PRFC: agency-reported landings from 1982-present (fish caught in Potomac River and landed in MD and VA). MD: state-reported landings from 1982-present (exclude Potomac River harvest). DE: state-reported landings from 1985-present. NJ: state-reported landings for 2005-06. NY: NMFS-reported landings. CT: state-reported landings from 1995-present. RI: SAFIS landings from 2005-present. MA: NMFS-reported landings.

Table 4. Recreational landings (pounds) of weakfish by state, 1982-2006 (NMFS 2007, except where noted)

Year	E. Fl	GA	SC	NC	VA	MD	DE	NJ	NY	CT	RI	MA	Total
1982	48,137		14,786	276,047	2,994,879	2,127,679	1,330,769	613,223	725,194		154,609		8,285,323
1983	82,520	12,165	4,515	338,100	738,671	1,215,376	2,205,140	6,080,018	164,227	12,976	588,805	22,452	11,464,965
1984	77,106		5,150	189,031	850,169	254,962	1,279,594	3,987,542	51,464	11,358		16,272	6,722,648
1985	4,579	3,422	105,151	184,485	508,980	898,313	1,102,095	1,876,608	638,913	17,269	131,884		5,471,699
1986	21,190	12,621	44,185	417,470	2,032,394	2,406,643	1,598,932	3,184,095	242,217	61,281	41,142		10,062,170
1987	9,639	9,491	23,781	710,002	647,692	831,615	1,072,198	3,353,362	51,830	4,286			6,713,896
1988	19,413		1,841	359,606	1,677,694	1,679,702	1,664,477	833,198	26,127				6,262,058
1989	23,643	8,175	5,963	139,979	424,463	344,658	521,648	575,110	46,133				2,089,772
1990	13,321	961	11,186	63,420	256,690	388,662	207,131	358,457	4,317		897		1,305,042
1991	17,812	5,597	25,210	99,824	280,075	278,176	427,778	896,800	35,931				2,067,203
1992	10,872	1,014	40,459	27,363	206,710	121,403	232,204	677,811	19,824	908	20,154		1,358,722
1993	23,308	12,791	6,929	78,982	89,992	173,952	291,627	312,839	18,889	6,510			1,015,819
1994	33,525	783	25,163	149,159	142,265	300,831	319,491	706,206	2,579				1,680,002
1995	9,301	21,283	22,875	72,412	211,494	141,511	419,527	898,564	24,467				1,821,434
1996	3,664	5,060	4,980	79,317	194,485	185,074	690,121	1,730,055	19,081				2,911,837
1997	16,369	34,356	1,728	165,032	463,652	188,339	734,800	1,817,034	220,718	1,367			3,643,395
1998	5,000	690	11,288	192,210	839,245	377,820	616,422	1,910,868	63,298	9,808		4,087	4,030,736
1999	21,684	1,614	4,383	161,291	399,588	544,474	484,157	1,374,169	63,058	6,371	5,866		3,066,655
2000	27,600	3,503	6,312	87,926	496,205	696,662	635,339	1,916,093	164,525	35,095	1,922		4,071,182
2001	9,341	2,983		158,423	373,206	567,625	172,969	1,251,150	151,584	4,883			2,692,164
2002	14,104	683	50,141	82,747	295,397	174,064	243,156	1,213,557	58,627	11,285	3,801		2,147,562
2003	4,701	1,327	4,306	161,474	215,522	24,698	57,866	333,690	37,106	3,536	2,379	873	847,478
2004	8,330	11,153	118,352	273,683	102,629	43,576	6,726	315,101	19,231				898,781
2005	23,973	7,659	94,205	157,977	20,439	8,814	39,438	1,149,891	606		8,457		1,511,459
2006	17,894	3,358	8,027	139,516	51,740	602	19,288	569,644	13,926		33,325		857,320

Notes
Florida: state reported values from 1983-present are NMFS-reported estimates adjusted for weakfish, sand seatrout, and hybrids.

Table 5. Recreational landings (numbers of fish) of weakfish by state, 1982-2006 (NMFS 2007, except where noted)

Year	E. Fl	GA	SC	NC	VA	MD	DE	NJ	NY	CT	RI	MA	Total
1982	40,161		17,342	200,045	715,892	440,146	217,821	104,066	88,234	11,769	18,614		1,854,090
1983	69,640	17,209	6,807	387,871	354,846	595,286	1,009,899	2,857,093	36,934	6,363	74,608	2,732	5,419,288
1984	103,344		7,836	489,468	782,848	104,057	593,107	1,026,043	20,133	1,561		2,237	3,130,634
1985	8,915	4,811	61,788	217,671	505,223	305,799	365,693	812,839	89,538	2,874	17,092		2,392,243
1986	27,155	18,130	78,315	611,363	2,418,046	1,947,394	914,489	2,500,622	34,582	7,315	4,595		8,562,006
1987	13,585	10,802	18,841	624,160	1,015,413	824,883	638,342	1,666,619	7,447	777			4,820,869
1988	20,920		1,834	438,148	2,297,053	1,163,766	974,712	642,032	13,215				5,551,680
1989	30,083	8,245	6,810	190,193	357,864	226,505	254,170	303,289	6,436				1,383,595
1990	18,540	2,273	8,027	91,300	286,458	370,528	179,837	216,385	3,057		407		1,176,812
1991	24,974	4,954	19,616	140,826	351,947	221,242	366,464	545,665	28,072	18,695			1,722,455
1992	14,707	1,751	23,501	35,490	265,645	137,260	100,561	311,659	5,282	434	9,624		905,914
1993	31,570	14,752	7,360	106,737	108,392	238,768	235,312	203,915	12,610	2,460			961,876
1994	46,227	718	46,858	177,965	169,740	332,846	300,211	591,571	1,872				1,668,008
1995	11,952	22,437	29,897	62,475	226,682	88,695	406,730	671,850	22,310		1,568		1,544,596
1996	7,554	5,413	5,695	90,704	193,861	183,408	633,920	1,104,251	16,320				2,241,126
1997	18,288	44,202	2,039	184,954	557,809	162,900	647,529	1,028,334	112,986	517	1,415		2,760,973
1998	6,439	718	15,838	191,181	463,525	290,051	455,603	920,558	21,392	2,183	0	618	2,368,106
1999	26,184	1,679	3,941	127,163	229,209	340,096	224,307	583,883	18,347	1,606	2,296		1,558,711
2000	30,275	4,181	5,585	71,247	286,752	475,348	311,553	760,279	42,406	7,342	712		1,995,680
2001	11,143	3,316		158,605	175,872	302,719	72,451	736,069	28,126	715	2,301		1,491,317
2002	16,668	852	90,245	90,170	178,110	100,467	121,884	492,876	24,962	1,796	1,420		1,119,450
2003	6,283	1,573	4,162	153,753	86,112	41,048	20,124	151,101	9,234	443	298	109	474,240
2004	10,500	9,815	153,589	237,395	103,181	29,645	6,967	183,649	7,596				742,337
2005	18,278	5,764	129,575	163,265	30,346	22,164	19,031	1,053,005	359		1,009		1,442,796
2006	19,624	3,505	7,146	153,845	58,797	493	11,150	415,982	9,159		2,852		682,553

Notes
Florida: state reported values from 1983-present are NMFS-reported estimates adjusted for weakfish, sand seatrout, and hybrids.

Table 6. Recreational releases (numbers of fish) of weakfish by state, 1982-2006 (NMFS 2007, except where noted)

Year	E. FL	GA	SC	NC	VA	MD	DE	NJ	NY	CT	RI	MA	Total
1982	3,387			44,134	126,514	2,139	12,712	1,695					190,581
1983	4,490	173		10,560	45,565	15,642	8,912	155,116	15,870				256,328
1984	1,404		1,561	17,381	202,791	8,934	1,163	4,464			5,214		242,912
1985	1,679	152	3,279	2,138	82,071	12,114	2,085	246,284					349,802
1986	4,798		2,873	354,095	692,462	327,841	9,637	895,044	4,556				2,291,306
1987	3,122	89		71,659	233,441	299,172	46,064	182,019	1,266				836,832
1988	133	4,196		109,489	484,782	155,255	59,980	5,144		634			819,613
1989	0		1,019	34,074	52,191	53,148	13,924	22,841	1,980				179,177
1990	561			20,669	198,948	142,055	41,765	32,863	570				437,431
1991	8,344			11,457	361,768	40,349	65,685	238,646	33,046	2,108			761,403
1992	8,336	362	4,598	27,052	244,817	71,040	61,886	249,846	8,362		98		676,397
1993	11,824	840	267	52,468	245,211	225,510	255,968	281,450	20,995				1,094,533
1994	9,168	21,588		147,616	652,571	583,059	560,999	1,051,931	45,537	1,013			3,073,482
1995	11,731	572		154,008	939,970	178,937	1,088,353	1,613,831	81,236		98		4,068,736
1996	6,405	307		188,263	814,573	492,402	1,567,046	1,859,049	84,990		780		5,013,815
1997	28,532		2,938	209,122	1,404,092	323,653	897,625	975,280	90,549	1,213	163		3,933,167
1998	11,374	1,468	329	131,537	1,244,949	461,518	613,544	778,180	29,836	360	1,921		3,275,016
1999	27,202		13,616	149,377	818,959	753,266	372,479	551,283	35,459		8,436		2,730,077
2000	49,553	12,895	15,869	346,212	935,594	1,209,290	465,496	1,605,024	68,531	1,285	931		4,710,680
2001	16,371	13,537		886,943	633,443	737,240	227,214	1,064,609	69,123		358		3,648,838
2002	17,592	9,540	1,019	336,709	888,337	286,182	101,282	350,810	62,803		1,932		2,056,206
2003	12,662	21,212	1,966	153,563	504,129	180,827	39,314	631,438	7,286	1,233			1,553,630
2004	29,058	12,249	107,177	240,298	528,200	132,087	79,238	607,393	40,254	5,470	248		1,781,672
2005	25,350	29,623	56,663	241,674	266,879	55,270	110,717	1,279,930	193,556				2,259,662
2006	52,712	6,275	21,904	295,421	456,236	57,466	120,855	1,229,674	11,732				2,252,275

Notes
Florida: state reported values from 1983-present are NMFS-reported estimates adjusted for weakfish, sand seatrout, and hybrids.

Table 7. Evaluation of the Coastwide Management Trigger (Section 3.3.1 of Addendum II to Amendment 4): percent change of each state's 2006 total landings to its five-year (2001-2005) mean total landings

	E. Fl	GA	SC	NC	VA	PRFC	MD	DE	NJ	NY	CT	RI	MA
2001-2005	13,410	4,761	53,402	1,315,667	880,721	22,060	233,019	217,040	1,342,915	358,524	10,417	78,039	508
2006	19,227	3,358	8,027	502,594	313,359	689	33,019	53,717	776,094	166,793	7,012	78,458	8,501
% change	**43%**	-29%	-85%	-62%	-64%	-97%	-86%	-75%	-42%	-53%	-33%	1%	**1575%**

Table 8. Biological sampling of weakfish from Massachusetts through Florida in 2006 (Sampling requirements are based on Addendum I to Amendment 4; NR= none reported; NA=not applicable)

	Sampling Requirements		Sampling Completed		Fisheries Sampled
	Otoliths	Lengths	Otoliths	Lengths	
MA	0	0	NR	NR	NA
RI	105	120	43	43	commercial
CT	0	0	NR	NR	NA
NY	225	414	182	182	commercial
NJ	1,000	558	774	2,025	commercial
DE	72	90	833	4,296	fishery independent, commercial
MD	42	84	181	496	commercial
PRFC	0	0	NR	NR	NA
VA	426	708	614	6,762	commercial
NC	681	984	756	8,712	commercial, recreational
SC	0	0	NR	NR	NA
GA	0	0	NR	10,385	fishery independent, com/rec
FL	0	0	NR	NR	NA

Table 9. Indices of relative weakfish abundance reported in the 2007 state compliance reports

Yr.	RI Trawl	CT Trawl	CT Trawl	NY Trawl	DE Trawl	DE Trawl	DE Trawl	MD Trawl	MD Trawl	VA Trawl	NC Trawl	NC Gill Net	GA Trawl	FL Trawl	FL Trawl
	Coastal	LI Sound	LI Sound	Coastal	DE Bay	Inland bays	DE Bay	Ches Bay	Coastal	Ches bay	Pamlico	Pamlico	Coastal	Indian R	IR & Jax
	1+	YOY	1+	YOY	YOY	YOY	1+	YOY	YOY	YOY	YOY	1+	0+	YOY	1+
	AM # / tow	GM # / tow	GM # / tow	AM # / tow	GM # / tow	GM # / tow	# / nm	GM # / tow	GM # / ha	GM # / tow	# / tow	# / set	# / obs hr	# / tow	# / tow
1980	*	*	*	*	4.15	*	*	*	*	6.45	*	*	*	*	*
1981	38.97	*	*	*	5.98	*	*	*	*	30.34	*	*	*	*	*
1982	19.55	*	*	*	11.49	*	*	*	*	17.86	*	*	*	*	*
1983	3.13	*	*	*	4.47	*	*	*	*	11.18	*	*	*	*	*
1984	5.03	1.00	0.55	*	6.67	*	*	*	*	4.99	*	*	*	*	*
1985	19.18	6.19	0.24	*	9.25	*	*	*	*	30.23	*	*	*	*	*
1986	1.96	13.17	0.24	*	12.79	1.14	*	*	*	4.95	*	*	*	*	*
1987	1.31	0.63	0.11	0.86	5.82	1.26	*	*	*	12.33	12.14	*	*	*	*
1988	10.86	2.90	0.06	0.25	4.73	0.81	*	*	*	8.05	101.50	*	*	*	*
1989	1.17	8.69	0.02	3.27	11.11	2.20	*	0.44	0.87	11.91	14.20	*	*	*	*
1990	27.26	5.56	0.08	1.05	8.73	2.95	*	0.95	1.72	4.29	50.20	*	*	*	*
1991	25.41	11.95	0.31	25.89	20.07	5.87	31.43	0.78	1.89	3.21	36.96	*	*	*	*
1992	14.51	3.03	0.18	10.72	14.72	2.51	23.83	3.24	1.81	6.78	42.71	*	*	*	*
1993	7.50	4.08	0.12	2.05	14.79	0.63	80.10	1.59	0.91	5.84	8.70	*	*	*	*
1994	15.17	11.19	0.06	27.18	11.47	1.47	206.50	2.33	1.84	2.60	68.06	*	*	*	*
1995	0.26	5.21	0.70	2.90	13.49	4.24	150.00	5.95	4.44	6.62	38.21	*	*	*	*
1996	116.06	15.23	0.56	55.52	12.13	1.18	233.80	6.40	3.18	7.26	72.07	*	*	*	*
1997	88.83	12.38	0.89	29.83	15.40	2.07	110.40	4.28	3.06	6.81	32.79	*	*	*	*
1998	13.19	5.02	0.28	2.28	11.35	1.35	102.07	5.87	2.80	7.60	70.44	*	*	*	*
1999	3.68	30.93	0.39	17.20	13.51	1.99	92.56	3.26	2.76	6.78	99.90	*	*	*	*
2000	9.38	63.31	0.30	67.10	14.14	1.64	179.12	6.54	2.34	8.35	62.99	*	*	*	*
2001	19.33	40.09	0.52	46.49	7.56	1.53	80.70	8.10	2.56	5.09	30.30	1.42	*	0.29	0.01
2002	8.38	41.35	0.16	54.91	5.96	1.31	144.98	3.92	0.61	6.93	22.00	1.40	*	0.68	0.02
2003	198.00	49.41	0.07	23.86	10.44	2.44	65.78	4.89	5.64	9.23	23.93	1.22	105.44	1.03	0.02
2004	1.88	58.98	0.21	22.67	8.39	3.32	48.88	1.62	3.39	6.66	28.75	1.32	94.42	1.65	0.03
2005	129.46	25.86	0.12	65.80	16.82	3.84	29.00	3.55	4.98	5.69	28.76	1.24	32.08	1.33	0.04
2006	0.36	1.05	0.29	34.60	5.35	1.60	106.31	2.41	1.50	na	39.09	0.92	79.96	0.41	0.02