

**FISHERY MANAGEMENT PLAN REVIEW
FOR WEAKFISH (*Cynoscion regalis*)
2005 FISHING YEAR**

Prepared by the ASMFC Weakfish Plan Review Team

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FISHERY MANAGEMENT PLAN REVIEW FOR WEAKFISH (*Cynoscion regalis*)

I. Status of the Fisheries Management Plan

The Atlantic States Marine Fisheries Commission (ASMFC) approved Amendment 4 to the Weakfish Fishery Management Plan in November 2002. The amendment was initially implemented in 2003. This review is of activities of the 2005 fishery and is the third under Amendment 4.

The ASMFC adopted its first Fishery Management Plan for Weakfish in 1985. Amendment 1 to the FMP was implemented in March 1992, Amendment 2 in April 1995, and Amendment 3 in October 1996. Weakfish are currently managed under the guidelines contained in Amendment 4, which was implemented July 2003, and completely replaced all previous amendments. The Commission adopted Addendum I to Amendment 4 in 2005 to replace the biological sampling program in section 3.0 of Amendment 4. Addendum I was first implemented for the 2006 fishing year (see section VI for more information on Addendum I).

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

- 1) to 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) to restore the weakfish age and size structure to that necessary for the restoration of the fishery;
- 3) to return weakfish to their previous geographic range;
- 4) to achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit, including states' waters and the federal EEZ;
- 5) to promote cooperative interstate research, monitoring and law enforcement necessary to support management of weakfish;
- 6) to promote identification and conservation of habitat essential for the long term stability in the population of weakfish; and
- 7) to 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, and a threshold spawning stock biomass (Table 1). 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.

Table 1. Amendment 4 Control Rule

	FISHING MORTALITY RATE	FEMALE SPAWNING STOCK BIOMASS
TARGET	$F_{30\%} = F = 0.31$	X
THRESHOLD	$F_{20\%} = F = 0.50$	$SSB_{20\%} = 31.8$ million pounds

Weakfish are managed under this plan as a single stock throughout their coastal range. All coastal states from Massachusetts through Florida and the Potomac River Fisheries Commission have a declared interest in weakfish. Responsibility for the FMP is assigned to the Weakfish Management Board, Plan Review Team, Technical Committee, Stock Assessment Subcommittee, and Advisory Panel.

II. Status of the Stock

A weakfish stock assessment of data through 1998 was conducted in 1999 and reviewed by the Stock Assessment Review Committee for peer review 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.

The 2002 update (Kahn 2002) also indicated that weakfish were at a high level of abundance and fishing mortality was low, suggesting that the management measures put in place in Amendment 3 had resulted in positive trends for the weakfish population. However, it was 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 (Figure 1). This dichotomy of assessment results and fishery performance lead the Weakfish Technical Committee to consider less traditional assessment techniques in their most recent stock assessment covering the period of 1982-2003, which was conducted in 2004-2006 (ASMFC 2006).

Results from the alternative approaches revealed that a large rise in natural mortality that started in the mid-1990s largely caused weakfish biomass and size structure to decline greatly by 2003 (Figure 2, Figure 3). 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 rapid decline in biomass starting in the late 1990s is 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 whose effect has been accelerated by high fishing or predation rates.

For the recent stock assessment, 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. Insufficient forage, especially Atlantic menhaden, and increased predation by striped bass have emerged as leading hypotheses that support rising natural mortality as cause for stock decline (Figure 4), 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 has 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. Due to the difficulty with this last stock assessment and pending management measures, the Technical Committee has been tasked with developing more qualitative techniques for tracking management progress in 2007.

III. Status of the Fishery

The majority of commercially and recreationally caught weakfish are landed from state waters. The dominant commercial gears used include gill nets, pound nets, haul seines, and trawls. The majority of commercial landings occur in the fall and winter months, presumably as the fish congregate to migrate. The recreational fishery catches weakfish using live or cut bait, jigging, trolling, and chumming. Recreational harvests typically peak in the warmer months (May through October) when effort tends to be greatest.

Typically recreational landings are recorded in numbers and commercial landings are recorded in pounds. However, Tables 2 and 4 use recreational landings in pounds to compare the landings of the fisheries. Both commercial and recreational landings fell consistently from 2000 to 2004, reaching all-time lows. In 2005, commercial landings continued to decrease, while recreational landings increased 84% from 2004.

Commercial Fishery --

The NMFS compiles commercial weakfish landings. The data are cooperatively collected by the 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. The NMFS data were not available for 2005 at the time of this report, thus the 2005 landings rely on preliminary data from annual state compliance reports. Massachusetts had no preliminary data to report and no estimate is included in the total.

The commercial weakfish fishery occurs during the fall and winter as the species migrates from estuaries to over-wintering grounds in the South Atlantic (Hogarth et al. 1995). Weakfish are taken primarily by trawls, pound nets, gill nets, and haul seines. Weakfish landings were dominated by the trawl fishery from the 1950's through the mid -1980's, when gill net landings began to account for the majority of the landings. Gill net landings in the latter half of the 1990's were about double that of the trawl fishery.

From 2000 to 2003, there was an increasing trend of the commercial fishery accounting for a higher percentage of the total catch (Table 1). However, this trend appears to have stopped in 2004. In 2005, commercial landings contributed less than 50% of the total landings for the first time in the time series (1982-present). Coastwide commercial weakfish landings have ranged from a time series high of 21.2 million pounds in 1986 to a low of 1.3 million pounds in 2005 (Table 3).

North Carolina, Virginia, and New Jersey have dominated commercial weakfish landings since 1950 (Table 3). North Carolina has annually landed the most weakfish since 1982 and Virginia has consistently landed the second most since 1993. North Carolina has accounted for over half of all the weakfish commercially landed since 1982.

Recreational Fishery --

Recreational catch statistics are collected by the NMFS in the Marine Recreational Fisheries Statistics Survey (MRFSS). 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.

Recreational landings hit a time series high of 11.7 million pounds in 1983 (Table 4). Landings were relatively high from 1983-1988, but abruptly fell in 1989. Annual recreational landings fluctuated between 1.1 million and 4.1 million pounds from 1993 to 2002, but fell to approximately 864,000 pounds in 2003. The lowest recreational landings on record occurred in 2004 (860,065 pounds). Recreational landings rebounded to over 1.5 million pounds in 2005, with New Jersey taking over 1.1 million pounds (~72% of recreationally landed weakfish). North Carolina is a distant second at 157,018 pounds (~10% of recreationally landed weakfish). 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 ~1.8 million fish in 2005 (Table 5).

Recreational landings from the EEZ account for only about 13% of the total coastwide recreational landings by pounds since 1982. From 1995 to 2005, recreational harvest in the EEZ has contributed less than 5.3% to each year's recreational landings, and only 1.8% in 2005. Since 1982, over half of the total recreational harvest in pounds has come from inshore saltwater and brackish water bodies such as bays, estuaries, and sounds. In 2005, these areas contributed 73.6% of the recreational landings.

IV. Status of Research and Monitoring

Fishery-Independent Surveys/Studies--

Young-of-the-year indices of relative abundance are produced by Rhode Island, New York, Delaware, Maryland (2 different indices), Virginia, North Carolina and Florida. North Carolina also produces an age-1 index, while Connecticut, New Jersey and Delaware produce age-structured indices of relative abundance from research trawl surveys. The National Marine Fisheries Service also produces an age-structured index for the Mid-Atlantic coast, while SEAMAP produces one for the South Atlantic Coast.

Biological Sampling--

The Marine Recreational Fisheries Statistics Survey collects data on recreational landings. North Carolina, Virginia, Maryland, and Delaware regularly collect biological data from commercial landings, including age data. Rhode Island, New York, New Jersey, Georgia, and Florida also contributed some otolith ages and/or lengths in 2005.

Biological sampling of commercial landings is an important component of catch-at-age analysis, used to assess the status of weakfish stocks. Section 3.0 of Amendment 4 requires biological sampling from states based on landings. In 2005, most states sampled adequately when compared to their landings.

With the implementation of Addendum I to Amendment 4 in 2005, sampling requirements for states will be determined differently for the 2006 fishing year. States with significant commercial and/or recreational landings will need to develop sampling programs to fulfill their requirements and help insure accurate assessments. Because of recent research suggesting that there are many separate weakfish stocks, assuming the catch composition of northern areas is equivalent to that of southern areas is highly questionable and weakens confidence in assessment results.

V. Research Needs for Weakfish

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.

VI. Status of Management Measures

Under Amendment 3, each state was required to implement harvest reduction strategies designed to recover weakfish over a 5-year period. Restoration of historic age and size structure, represented currently by the average percentage of fish numbers at each age from 1979 to 1994, was also a plan goal. According to the 26th SAW, the projected fishing mortality for 1996 was achieved and according to the 2000 stock assessment, fishing mortality was below the Amendment 3 target of 0.50. The 2002 update of the stock assessment estimated that the fishing mortality was below the Amendment 4 target of 0.31 and spawning stock biomass (SSB) above the threshold of 31.8 million pounds. However, the most recent stock assessment with data through 2003 shows the SSB threshold may have been triggered.

The intent of Amendment 4 is to establish a control rule to accurately categorize the status of the stock by considering both fishing mortality and spawning stock biomass, simultaneously. The control rule (Table 1) provides managers with several factors to use when evaluating the status of the stock. Because of changing conditions in the fishery, the fishing mortality and SSB percentages should be used when evaluating biological reference points (i.e. $F_{30\%}$ should be used, not necessarily 0.31).

Amendment 4 maintained the current commercial fishery management measures. However, a new recreational reference period (1981-1985), revised reference points (Table 1), and a

changing weakfish population led to adjustments in the recreational management measures to reduce high creel limits in some states where the limits were no longer appropriate.

Since the implementation of Amendment 4, weakfish biomass and landings have decreased to low levels. While some states are having difficulty obtaining the required data, the sampling levels required in Section 3.0 have been inadequate to run robust coastwide stock assessments. As a result, the Board approved Addendum I to Amendment 4 in 2005, which consists of a biological sampling program to replace Section 3.0 of Amendment 4. The provisions of Addendum I set the biological sampling requirements for states for the 2006 fishing year.

During the development of Addendum I, the Management Board was considering both a biological sampling program and management options to reduce fishing mortality by 0% (status quo), 25%, 50%, 75% or 100% (moratorium). The former was approved in Addendum I, while action on the latter was postponed until the weakfish stock assessment was peer reviewed. The outcome of the peer review further delayed development of what would become Draft Addendum II. After the Weakfish Technical Committee provided a report on the 2005 fishery and its response to the peer review panel, the Board initiated the development of a Supplement to Draft Addendum II to better describe the changes to state regulations that a mandated 25% reduction in fishing mortality would require. The Management Board is expected to act on Draft Addendum II at their October 2006 meeting.

VII. Current State-by-State Implementation per Compliance Requirements

New Jersey is out of compliance with Amendment 4 to the Weakfish Fishery Management Plan for failing to collect the required number of biological samples in 2005. All other states and jurisdictions are in compliance with Amendment 4 in 2005. The states of Connecticut, South Carolina, Georgia, and Florida requested *de minimis* status for 2005 as defined in Amendment 4. South Carolina and Florida did not qualify; however, the Management Board granted these states a one-year grace period before review of their status. Massachusetts qualified for *de minimis* status but did not request it.

VII. 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 Technical Committee will develop additional qualitative techniques for tracking management progress in the future, as tasked by the Board in 2006. The Plan Review Team supports the continued exploration of these additional approaches for the assessment for weakfish.

VIII. Recommendations

The Plan Review Team recommends that:

- All states continue the commercial and recreational measures, monitoring requirements, and recommendations of Amendment 4. Particular attention should be given to achieving the biological sampling requirements that Addendum I to Amendment 4 will require, starting in 2006.

IX. References

Atlantic States Marine Fisheries Commission. 2006. Weakfish Stock Assessment Report for Peer Review. Unpublished.

Hogarth, W. T., T. Meyer, P. Perra and R. H. Shaefer. 1995. Final environmental impact statement and draft regulatory impact review for a regulatory amendment for the Atlantic Coast weakfish fishery in the Exclusive Economic Zone (EEZ). U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Fisheries Conservation and Management, Recreational and Interjurisdictional Fisheries Division, Silver Spring, MD. 84 pp.

Kahn, D. M. 2002. Stock assessment of weakfish through 2000, including estimates of stock size on January 1, 2001. Unpublished.

NMFS, Northeast Fishery Science Center. 2000. Report of the 30th Northeast Regional Stock Assessment Workshop (30th SAW): Stock Assessment Review Committee (SARC) consensus summary of assessments. Northeast Fish. Sci. Cent. Ref. Doc. 900-03, Woods Hole, MA.

Figure 1. Annual coastwide weakfish landings (1982-2005).

Commercial landings for 2005 are considered preliminary; Massachusetts landings are not included; Georgia landings are confidential but no more than 100 lbs; this maximum value was used in the calculation.

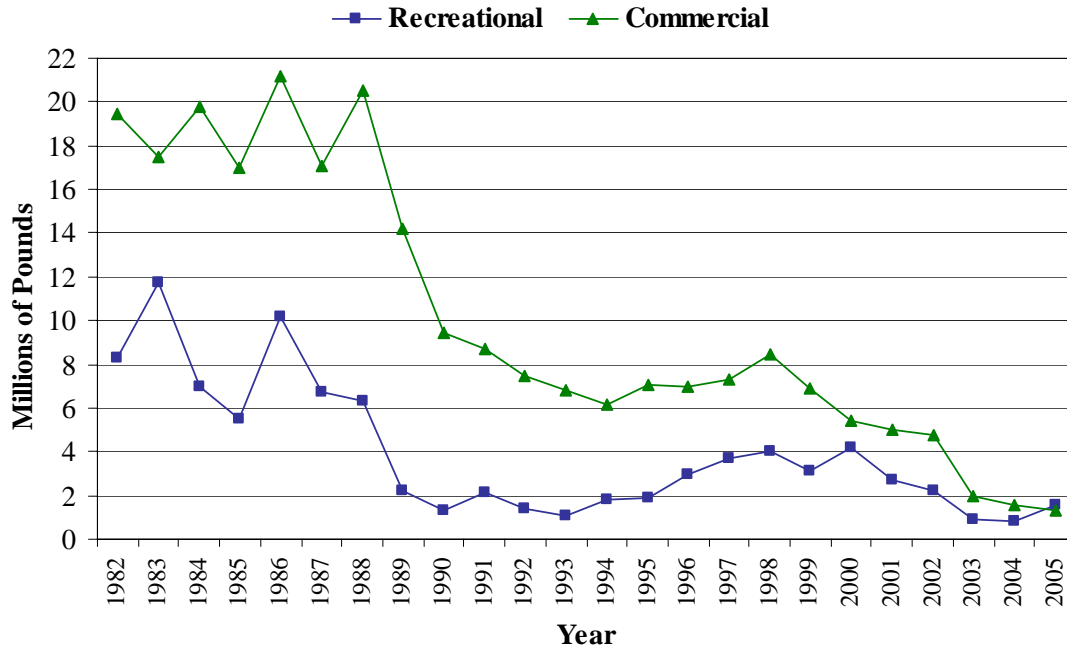


Figure 2. Coastwide weakfish annual total, natural, and fishing mortality percentages

Rates were translated into annual percentages, thus fishing and natural mortality are not additive. (Weakfish Technical Committee, 2006)

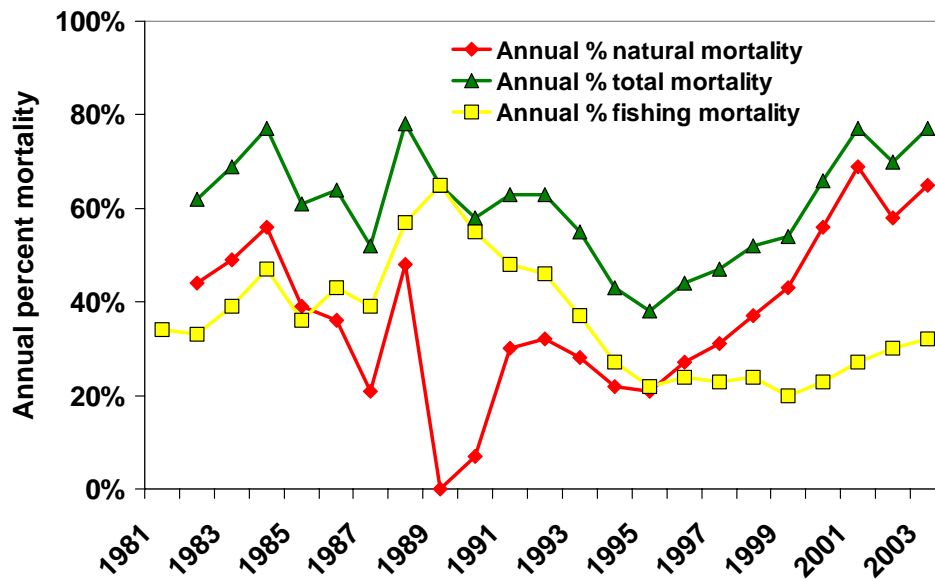


Figure 3. Estimated coastwide weakfish biomass
(Weakfish technical committee, 2006)

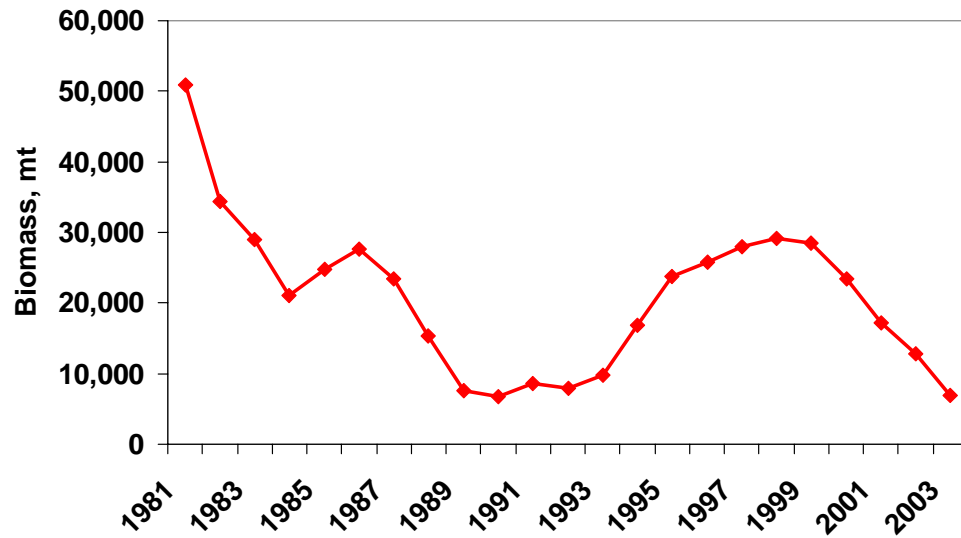


Figure 4. Food web hypothesis

Weakfish commercial landings are predicted by indices for large bass and menhaden juveniles (multiple regression; both terms significant; menhaden partial $r^2 = +0.73$; bass partial $r^2 = -0.03$).
(Weakfish Technical Committee, 2006)

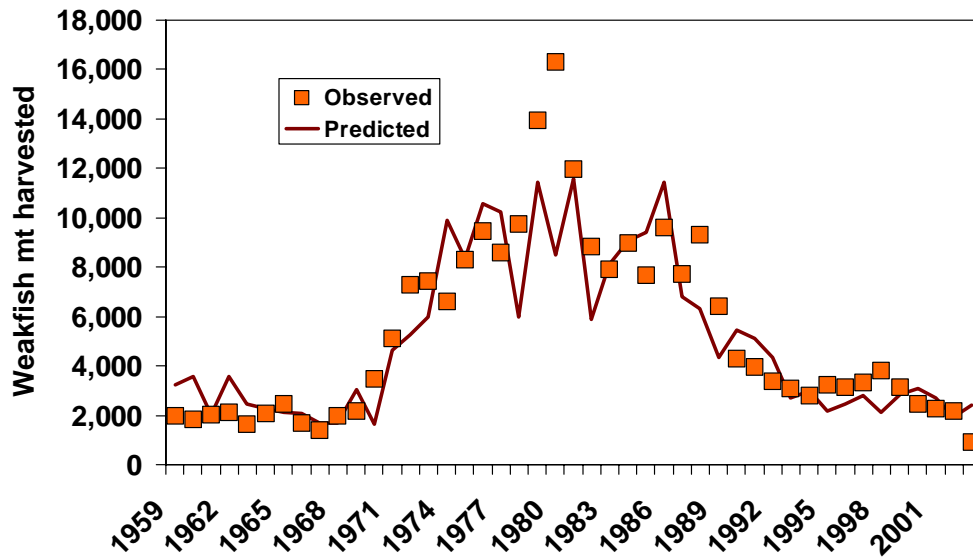


Table 2. Comparison of Atlantic coast commercial and recreational weakfish landings

Year	Recreational Landings (pounds)	Commercial Landings (pounds)	Total Pounds	% Total as Commercial
1982	8,285,323	19,478,274	27,763,597	70%
1983	11,730,620	17,475,003	29,205,623	60%
1984	7,013,779	19,773,587	26,787,366	74%
1985	5,489,027	16,953,357	22,442,384	76%
1986	10,141,785	21,187,973	31,329,758	68%
1987	6,749,894	17,072,159	23,822,053	72%
1988	6,331,649	20,526,402	26,858,051	76%
1989	2,177,234	14,162,178	16,339,412	87%
1990	1,347,259	9,438,190	10,785,449	88%
1991	2,130,564	8,692,760	10,823,324	80%
1992	1,398,977	7,453,788	8,852,765	84%
1993	1,102,338	6,853,579	7,955,917	86%
1994	1,795,515	6,190,522	7,986,037	78%
1995	1,855,546	7,098,658	8,954,204	79%
1996	2,925,391	6,940,038	9,865,429	70%
1997	3,692,716	7,297,783	10,990,499	66%
1998	4,044,973	8,419,604	12,464,577	68%
1999	3,143,428	6,905,158	10,048,586	69%
2000	4,154,793	5,400,529	9,555,322	57%
2001	2,722,629	4,999,539	7,722,168	65%
2002	2,192,603	4,772,978	6,965,581	69%
2003	864,960	2,001,271	2,866,231	70%
2004	860,086	1,523,919	2,384,005	64%
2005	1,584,547	1,315,859	2,900,406	45%

*Commercial landings for 2005 are preliminary. Massachusetts landings are not included in the coastwide total. One hundred pounds was included for Georgia's commercial landings; the state reported "confidential but no more than 100 lbs."

Table 3. Atlantic coast commercial landings (pounds weakfish) by state, 1982 - 2005

Year	E. FL	GA	SC	NC	VA	MD	DE	NJ	NY	CT	RI	MA	Total
1982	176,203	596	443	12,052,232	2,149,200	249,200	1,294,500	2,073,500	1,257,100	25,600	176,800	22,900	19,478,274
1983	117,720	2,749		10,233,734	2,592,900	390,000	901,800	2,172,700	850,000	42,800	163,700	6,900	17,475,003
1984	125,799	862		12,990,726	2,109,000	325,000	782,400	2,751,600	484,500	31,300	167,600	4,800	19,773,587
1985	132,291	82		9,821,188	2,082,186	316,110	990,800	3,030,100	386,200	28,200	163,100	3,100	16,953,357
1986	108,726	75		14,309,372	1,994,100	336,700	723,500	3,208,600	359,900	13,700	127,600	5,700	21,187,973
1987	123,081	189		11,508,389	1,962,800	366,900	577,800	2,094,100	329,100	29,500	78,600	1,700	17,072,159
1988	115,124			15,091,878	1,473,200	832,600	530,700	2,332,800	124,500	2,400	19,400	3,800	20,526,402
1989	171,318		113	10,115,747	1,025,200	743,800	530,200	1,458,500	103,500	2,300	9,600	1,900	14,162,178
1990	137,188	33		5,802,159	1,207,560	662,361	613,000	968,318	19,924	1,281	24,646	1,720	9,438,190
1991	164,925			5,308,574	1,059,679	328,251	497,300	1,174,181	111,629	21,300	25,009	1,912	8,692,760
1992	147,858			4,862,551	549,961	385,426	362,400	940,695	168,087	3,500	30,277	3,033	7,453,788
1993	144,347			4,309,249	1,088,047	181,863	194,700	834,446	88,379	1,477	9,991	1,080	6,853,579
1994	179,582			3,490,004	1,294,224	140,907	261,900	695,280	99,470	11,000	18,155		6,190,522
1995	50,310			4,113,317	1,485,065	69,417	281,200	867,262	172,431	6,431	52,690	535	7,098,658
1996	4,493			3,977,671	1,587,186	132,795		822,041	365,307	6,937	43,522	86	6,940,038
1997	11,720			3,561,124	1,557,980	192,634	558,919	1,036,470	336,752	10,958	31,171	55	7,297,783
1998	11,518			3,354,060	1,863,928	244,467	552,644	1,804,618	496,403	14,482	77,074	410	8,419,604
1999	17,486			2,617,623	1,674,052	223,455	440,295	1,291,319	489,935	22,172	126,271	2,550	6,905,158
2000	9,430			1,869,073	1,362,829	208,315	328,813	1,071,428	352,832	7,920	189,362	527	5,400,529
2001	10,821			1,960,380	1,121,961	185,815	187,642	837,550	578,797	6,774	109,568	231	4,999,539
2002	5,746			1,828,052	1,144,068	111,391	172,810	863,088	513,977	10,223	122,781	842	4,772,978
2003	2,549			848,847	459,385	47,409	91,476	340,269	144,416	3,059	63,337	524	2,001,271
2004	2,578		4	685,429	357,100	49,519	51,230	204,587	178,414	6,206	38,307	68	1,573,442
2005 (prelim)	1,652	< 100		421,469	338,574	30,983	70,788	205,692	198,342	5,907	41,348	Not available	1,117,517*

* 2005 total includes 1,004 pounds reported by the Potomac River Fisheries Commission, and the maximum of 100 lbs from Georgia.

Source: NMFS Fisheries Statistics Division 2005; State Reports 2006 (preliminary)

Table 4. Atlantic coast recreational landings (pounds of A +B1 weakfish) by state, 1982 - 2005

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	348,175	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	11,730,620
1984	368,237		5,150	189,031	850,169	254,962	1,279,594	3,987,542	51,464	11,358		16,272	7,013,779
1985	21,907	3,422	105,151	184,485	508,980	898,313	1,102,095	1,876,608	638,913	17,269	131,884		5,489,027
1986	100,805	12,621	44,185	417,470	2,032,394	2,406,643	1,598,932	3,184,095	242,217	61,281	41,142		10,141,785
1987	45,637	9,491	23,781	710,002	647,692	831,615	1,072,198	3,353,362	51,830	4,286			6,749,894
1988	89,004		1,841	359,606	1,677,694	1,679,702	1,664,477	833,198	26,127				6,331,649
1989	111,105	8,175	5,963	139,979	424,463	344,658	521,648	575,110	46,133				2,177,234
1990	55,538	961	11,186	63,420	256,690	388,662	207,131	358,457	4,317		897		1,347,259
1991	81,173	5,597	25,210	99,824	280,075	278,176	427,778	896,800	35,931				2,130,564
1992	51,127	1,014	40,459	27,363	206,710	121,403	232,204	677,811	19,824	908	20,154		1,398,977
1993	109,827	12,791	6,929	78,982	89,992	173,952	291,627	312,839	18,889	6,510			1,102,338
1994	149,038	783	25,163	149,159	142,265	300,831	319,491	706,206	2,579				1,795,515
1995	43,413	21,283	22,875	72,412	211,494	141,511	419,527	898,564	24,467				1,855,546
1996	17,218	5,060	4,980	79,317	194,485	185,074	690,121	1,730,055	19,081				2,925,391
1997	65,690	34,356	1,728	165,032	463,652	188,339	734,800	1,817,034	220,718	1,367			3,692,716
1998	19,237	690	11,288	192,210	839,245	377,820	616,422	1,910,868	63,298	9,808		4,087	4,044,973
1999	98,457	1,614	4,383	161,291	399,588	544,474	484,157	1,374,169	63,058	6,371	5,866		3,143,428
2000	111,211	3,503	6,312	87,926	496,205	696,662	635,339	1,916,093	164,525	35,095	1,922		4,154,793
2001	39,806	2,983		158,423	373,206	567,625	172,969	1,251,150	151,584	4,883			2,722,629
2002	59,145	683	50,141	82,747	295,397	174,064	243,156	1,213,557	58,627	11,285	3,801		2,192,603
2003	22,183	1,327	4,306	161,474	215,522	24,698	57,866	333,690	37,106	3,536	2,379	873	864,960
2004	36,246	11,305	*119,428	267,625	102,051	34,229	6,742	263,465	18,995				860,086
2005	99,729*	7,456	90,428	157,018	20,556	17,474	37,714	1,145,157	602		8,413		1,584,547

* States disagree with these numbers. South Carolina believes this number to be greatly higher than the actual harvest due to high sampling error by MRFSS. Florida reports a recreational harvest of 23,379 pounds. The state believes the MRFSS number to be incorrect due to misidentification of sand seatrout and hybrids of weakfish-sand seatrout as weakfish.

Source: NMFS Fisheries Statistics Division 2006

Table 5. Atlantic coast recreational releases (number of B2 weakfish) by state, 1982 – 2005

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	21,481	173		10,560	45,565	15,642	8,912	155,116	15,870				273,319
1984	6,719		1,561	17,381	202,791	8,934	1,163	4,464			5,214		248,227
1985	8,032	152	3,279	2,138	82,071	12,114	2,085	246,284					356,155
1986	22,955		2,873	354,095	692,462	327,841	9,637	895,044	4,556				2,309,463
1987	14,563	89		71,659	233,441	299,172	46,064	182,019	1,266				848,273
1988	636	4,196		109,489	484,782	155,255	59,980	5,144		634			820,116
1989			1,019	34,074	52,191	53,148	13,924	22,841	1,980				179,177
1990	2,684			20,669	198,948	142,055	41,765	32,863	570				439,554
1991	35,731			11,457	361,768	40,349	65,685	238,646	33,046	2,108			788,790
1992	39,597	362	4,598	27,052	244,817	71,040	61,886	249,846	8,362		98		707,658
1993	56,575	840	267	52,468	245,211	225,510	255,968	281,450	20,995				1,139,284
1994	38,141	21,588		147,616	652,571	583,059	560,999	1,051,931	45,537	1,013			3,102,455
1995	51,338	572		154,008	939,970	178,937	1,088,353	1,613,831	81,236		98		4,108,343
1996	29,558	307		188,263	814,573	492,402	1,567,046	1,859,049	84,990		780		5,036,968
1997	112,075		2,938	209,122	1,404,092	323,653	897,625	975,280	90,549	1,213	163		4,016,710
1998	47,407	1,468	329	131,537	1,244,949	461,518	613,544	778,180	29,836	360	1,921		3,311,049
1999	123,561		13,616	149,377	818,959	753,266	372,479	551,283	35,459		8,436		2,826,436
2000	209,749	12,895	15,869	346,212	935,594	1,209,290	465,496	1,605,024	68,531	1,285	931		4,870,876
2001	76,485	13,537		886,943	633,443	737,240	227,214	1,064,609	69,123		358		3,708,952
2002	79,262	9,540	1,019	336,709	888,337	286,182	101,282	350,810	62,803		1,932		2,117,876
2003	59,517	21,212	1,966	153,563	504,129	180,827	39,314	631,438	7,286	1,233			1,600,485
2004	132,804	12,102	108,415	239,474	522,859	127,979	76,427	565,695	40,636	5,609	264		1,832,264
2005	109,527	29,896	54,891	235,349	263,433	56,299	111,290	1,288,121	193,705				2,342,511

Source: NMFS Fisheries Statistics Division 2006