

2007 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN
FOR
AMERICAN LOBSTER
(Homarus americanus)



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I. Status of the Fishery Management Plan

<u>Year of ASMFC Plan's Adoption:</u>	Amendment 3 (1997)
<u>Framework Adjustments:</u>	Addendum I (1999) Addendum II (2001) Addendum III (2002) Addendum IV (2003) Addendum V (2004) Addendum VI (2005) Addendum VII (2005) Addendum VIII (2006) Addendum IX (2006) Addendum X (2007) Addendum XI (2007)
<u>Management Unit:</u>	Maine through North Carolina
<u>States with a Declared Interest:</u>	Maine through North Carolina (Excluding Pennsylvania)
<u>Active Committees:</u>	American Lobster Management Board, Technical Committee, Socio-Economic Sub- Committee, Advisory Panel, Plan Development Team, Plan Review Team, Transferability Subcommittee, And Stock Assessment Subcommittee

II. Status of the Fishery

The lobster fishery has seen substantial expansion in effort and landings since the late 1940s and early 1950s, when landings varied around 25 million pounds. The last eleven years alone have seen dramatic increases in lobster landings, rising from 57 million pounds in 1993 and peaking in 2006 at 93 million pounds (table 1). The significance of this increase in harvest is most easily illustrated by comparing 2006 landings to that of the period between 1978-1987 (33-44 million pounds). Landings have continued to increase over time, with small decreases occurring in 1992, 1998, 2000, and 2003. Maine and Massachusetts account for 90% of the 2006 commercial landings, 78% and 12% respectively (table 2). It is expected that reporting has improved over the recent years and may account for the increasing trend in landings for some states. Therefore the trend may not be accurate. The technical committee is currently evaluating this issue. While overall landings peaked at a new high in 2006, there has been a noticeable downward trend in abundance and landings of lobster in Southern New England since landings in SNE peaked much earlier in 1999 and have not recovered. Approximately 80 percent of lobster are caught in

state waters, which extend from zero to three miles from shore. Lobster pots are the predominant commercial gear. Lobster is also taken recreationally with pots and by hand while SCUBA diving. The magnitude of recreational landings is unknown.

During the fall and winter of 1999-2000, the lobster resource in western Long Island Sound suffered mass mortalities, the cause of which include pesticides, environmental factors (e.g. water temperature changes), and disease (Balcom and Howell, 2006). Following requests from the Governors of NY and CT, the U.S. Secretary of Commerce, on January 26, 2000, declared the Long Island Sound (LIS) die-off to be a commercial fishery failure. Following the declaration, the U.S. Congress appropriated \$13.9 million to address the biological and economic consequences of the fishery failure. \$7.3 million of this amount was used to provide economic relief to impacted lobstermen in NY and CT. \$6.6 million was used to fund comprehensive research into the possible causes(s) of poor lobster health in LIS.

In August of 2002, the Lobster Management Board asked the Technical Committee to advise the Board on the magnitude of problems in Area 2 as well as recommend an appropriate response. This request was in response to requests from Area 2 fishermen to look into the dramatic declines of the resource in Area 2. The October 2002 Technical Committee report indicated that landings had declined, the area survey indices had declined, and the incidence of shell disease was increasing. There was a consensus among the TC that the current overfishing definition (F10%), in combination with the proposed management measures, were not sufficient to remedy the current stock declines observed in Area 2 and spawning stock biomass needed to be rebuilt. The Lobster TC recommended reducing fishing mortality in Area 2, by reducing effort in Area 2. In fall of 2005, the Board approved an effort control plan for Area 2, specified in Addendum VII, that would be effective July 1, 2007. The goal of this plan is intended to reduced traps to 2003 levels.

Based on information from the 2005 peer reviewed stock assessment, that included information on lobster maturity, abundance trends, size composition, and anecdotal information from fishermen, the Lobster Board adopted recommendations from the 2005 peer review that area specified in Addendum VIII, Addendum X, and Addendum XI. Specifically, Addendum X adopted new stock assessment areas (Gulf of Maine (GOM), Georges Bank (GBK), and Southern New England (SNE) and Addendum VIII adopted new biological reference points, including abundance and fishing mortality targets and thresholds. The new reference points are designed to take advantage of multiple measures of stock status. Many of these new measures of stock status depend heavily upon the accuracy of landings data from every area of the coast. The expanded reporting programs specified in Addendum X are vital for reliable status assessments that can resolve differences by area and have a quick enough turn around time to be useful for immediate management recommendations.

Table 1. Landings of American Lobster by the states of Maine through New Jersey/South from 1990-2006 (pounds). (Source, ASMFC Lobster Database as of 10/16/2007)

Year	Maine	New Hampshire	Massachusetts	Rhode Island	Connecticut	New York	New Jersey & South*	Total Landings	\$**
1990	28,068,238	1,658,200	16,966,779	7,258,175	2,645,951	3,431,111	2,350,427	62,378,881	154,746,585
1991	30,788,646	1,802,035	16,071,579	7,445,172	2,673,674	3,128,246	1,762,090	63,671,442	164,919,855
1992	26,830,448	1,529,292	15,031,950	6,763,087	2,534,161	2,651,067	1,262,287	56,602,292	164,429,100
1993	29,926,464	1,693,347	14,431,048	6,228,470	2,177,022	2,667,107	980,088	58,103,546	160,660,419
1994	38,948,867	1,650,751	16,278,360	6,474,399	2,146,339	3,954,634	598,248	70,051,598	207,519,216
1995	37,208,324	1,834,794	16,049,386	5,362,084	2,251,140	6,653,780	663,275	70,022,783	214,582,346
1996	36,083,443	1,632,829	15,358,900	5,295,797	2,888,683	9,408,519	690,677	71,358,848	241,606,891
1997	47,023,271	1,414,133	15,111,642	5,798,529	3,468,051	8,878,395	895,561	82,589,582	271,620,704
1998	47,036,836	1,194,653	13,247,727	5,617,873	3,715,310	7,891,158	743,742	79,447,299	253,044,228
1999	53,494,418	1,380,360	15,911,082	8,155,947	2,595,764	6,452,472	994,167	88,984,210	328,856,577
2000	57,211,327	1,709,746	15,031,538	6,907,804	1,393,565	2,883,468	1,021,768	86,159,216	311,435,505
2001	48,617,693	2,027,725	12,241,162	4,452,358	1,329,707	2,052,741	640,553	71,361,939	250,102,285
2002	63,625,745	2,029,887	13,719,249	3,835,050	1,067,121	1,440,483	293,318	86,010,853	304,235,310
2003	54,970,948	1,958,817	11,896,634	3,474,508	671,119	946,449	249,948	74,168,423	293,346,149
2004	71,574,344	2,851,262	11,148,758	3,064,128	646,994	996,109	425,828	90,707,423	375,610,087
2005	68,729,813	2,556,481	10,799,604	4,343,900	713,901	1,154,470	436,188	88,734,357	419,796,477
2006	72,666,861	2,604,730	11,419,018	3,749,541	792,894	1,242,601	528,193	93,003,838	396,807,152

*NH Landings for 2004 is currently under review; +NJ/South includes landings for NJ, DE, MD, VA, and NC.

**Value is calculated using NMFS annual price per pound.

Table 2. State-by-state percent of total coastwide American lobster landings.

Year	ME	MA	RI	NY	CT	NH	NJ & South
1990	45.0%	27.2%	11.6%	5.5%	4.2%	2.7%	3.8%
1991	48.4%	25.2%	11.7%	4.9%	4.2%	2.8%	2.8%
1992	47.4%	26.6%	11.9%	4.7%	4.5%	2.7%	2.2%
1993	51.5%	24.8%	10.7%	4.6%	3.7%	2.9%	1.7%
1994	55.6%	23.2%	9.2%	5.6%	3.1%	2.4%	0.9%
1995	53.1%	22.9%	7.7%	9.5%	3.2%	2.6%	0.9%
1996	50.6%	21.5%	7.4%	13.2%	4.0%	2.3%	1.0%
1997	56.9%	18.3%	7.0%	10.8%	4.2%	1.7%	1.1%
1998	59.2%	16.7%	7.1%	9.9%	4.7%	1.5%	0.9%
1999	60.1%	17.9%	9.2%	7.3%	2.9%	1.6%	1.1%
2000	66.4%	17.4%	8.0%	3.3%	1.6%	2.0%	1.2%
2001	68.1%	17.2%	6.2%	2.9%	1.9%	2.8%	0.9%
2002	74.0%	16.0%	4.5%	1.7%	1.2%	2.4%	0.3%
2003	74.1%	16.0%	4.7%	1.3%	0.9%	2.6%	0.3%
2004	78.9%	12.3%	3.4%	1.1%	0.7%	3.1%	0.5%
2005	77.5%	12.2%	4.9%	1.3%	0.8%	2.9%	0.5%
2006	78.1%	12.3%	4.0%	1.3%	0.9%	2.8%	0.6%

III. Status of Assessment Advice

Most Recent Assessment

The 2005 peer-reviewed stock assessment report indicates the American lobster resource presents a mixed picture, with stable stock abundance throughout most of the Gulf of Maine (GOM) and Georges Bank (GBK), low abundance and recruitment in Southern New England (SNE), and decreased recruitment and abundance in Massachusetts Bay and Stellwagen Bank (Statistical Area 514). Of particular concern is SNE, where depleted stock abundance, low recruitment, and high fishing mortality rates over the past few years have led the Peer Review Panel to call for the Board to make additional harvest restrictions.

IV. Status of Research and Monitoring

Research Needs

Age and Growth

All assessments of lobster stock status have been based on analyses of length data. Age is assumed by applying per-molt growth increments and molt frequencies to the length data. Based on these analyses, the American lobster has been treated as an extremely long-lived animal, reaching a reproductive maximum at a relatively old age. These assumptions are justified but are based on no actual age data. Applying aging techniques developed in England and Australia for lobster and other crustaceans would greatly improve our understanding of how many year-classes support the current trap fishery, how length relates to age, and how variable the age structure is over stock area and time.

Ecosystem-based Management

NOAA's 2004 Strategic Plan for Fisheries Research recommends the inclusion of ecosystem and

environmental information in all stock assessments. Further examination of lobster mortality not related to the fishery would provide a better understanding of factors limiting productivity and longevity. Topics should include: predator/prey interactions and community structure, climatic shifts in ocean currents and temperature, and toxic substances causing chronic stress or disease.

Fishery-Dependent Information

Accurate and comparable landings are the principal data needed to assess the impact of fishing on lobster populations. The quality of current landings data is not consistent spatially or temporally. Standardized mandatory reporting of landings data resource-wide would improve the assessment. Aligning stock management areas with area designations for landings is necessary. Enhanced sea sampling and port sampling to create a more complete record of biological characteristics of the catch and harvest would also improve the usefulness of these data. This is especially needed in offshore waters.

Fishery-Independent Information

There is a need to develop consistent techniques that monitor distribution and abundance of lobster independent of the fishery. Current methods (e.g. trawls) are limited in area (gear conflicts) and habitat sampled (unable to access complex bottom). Additional methodologies should be investigated that cover a wide range of sizes and habitats. These could include ventless traps (see the Monitoring Section below for more information on a recently implemented cooperative random stratified ventless trap survey), dive/ROV, and settlement surveys.

Investigation of Historical Levels of Stock Production

It has been pointed out that one limitation of the proposed reference points is the period covered by the assessment (the assessment covers data from 1981-forward). Investigations of past levels of stock size and size structure could provide additional insight in to setting reference points that relate to the full range of stock productivity.

Investigation of Trans-boundary Assessments

Investigate conducting joint US and Canadian assessments.

Model Development

Size based models should be examined to determine their ability to match length frequencies and other biological characteristics observed in local lobster populations. Additionally, the utility of using yield and spawning biomass per recruit and surplus production models should be evaluated through simulation as a basis for developing alternative reference points. *The ongoing 2008 assessment is evaluating a sized-based model that will be reviewed in the fall of 2008.*

Monitoring

With the dramatic decline in the lobster resource south of Cape Cod in the late 90's and early 2000 and subsequent impacts on the fishery, it was imperative to effectively monitor the relative distribution and abundance of the lobster fishery in coastal waters. To address this need in 2005, a cooperative random stratified ventless trap survey was designed to generate accurate estimates

of the spatial distribution of lobster length frequency, lobster relative abundance and recruitment while attempting to eliminate the biases identified in conventional fishery dependent surveys.

In 2006, New Hampshire, Massachusetts, Rhode Island, and New York added port sampling to collect representative samples of lobster catches in under sampled statistical areas, both federal and state waters. This data will be analyzed and used for future lobster assessments. This sampling program is designed to improve the catch, effort, and biological data that are representative of the fishery as a whole.

As noted in Section II, Status of the Fishery, the approval of Addendum X in February 2007 mandated expanded data collection on the lobster fishery. Effective July, 2008, this addendum establishes mandatory 100% coastwide dealer reporting requirements as well as requirements that at least 10% of active harvesters report. Measures in Addendum X is intended to address the need to more effectively monitor the relative distribution and abundance of the lobster fishery in coastal waters.

V. Status of Management Measures and Issues

Amendment 3 established management measures that require coastwide and area specific measures applicable to commercial fishing. The coastwide requirements are summarized in Table 3.

Table 3. Coastwide requirements and prohibited actions

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| <ul style="list-style-type: none">▪ Prohibition on possession of berried or scrubbed lobsters▪ Prohibition on possession of lobster meats, detached tails, claws, or other parts of lobsters by fishermen▪ Prohibition on spearing lobsters▪ Prohibition on possession of v-notched female lobsters▪ Requirement for biodegradable “ghost” panel for traps▪ Minimum gauge size of 3-1/4”▪ Limits on landings by fishermen using gear or methods other than traps to 100 lobsters per day or 500 lobsters per trip for trips 5 days or longer▪ Requirements for permits and licensing▪ All lobster traps must contain at least one escape vent with a minimum size of 1-15/16” by 5-3/4”▪ Maximum trap size of 22,950 cubic inches in all areas except area 3, where traps may not exceed a volume of 30,100 cubic inches. |
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Amendment 3 also established seven Lobster Conservation Management Teams (LCMTs), each of which coincides with a management area. The Commission has approved several addenda for the purposes of incorporating LCMT recommendations for full implementation of Amendment 3. Addendum I incorporated measures from the LCMT proposals, which were intended to control effort. Addenda II-V were designed to address management measures affecting egg production. Addendum VI replaces two of the effort control measures of Addendum IV, permits and eligibility period. No new Area 2 permits will be distributed after December 31, 2003 and to qualify for an Area 2 permit endorsement, a permit holder must document landings between January 1, 1999 and December 31, 2003. Addendum VII establishes an effort control plan for area 2. Addendum VIII established reporting and monitoring requirements, which were replaced by addendum X. Addendum XII also established new biological reference points. Addendum IX

set a conservation tax for LCMA 2 transfers. Addendum XI incorporates measures from LCMT proposals to rebuild the SNE stock that is depleted and overfished. It also implements delayed implementation measures. The measures included in Addenda I-XI supercede measures addressing similar issues under Amendment 3 and are summarized in Tables 4 below.

Table 4: Area specific management measures

Management measures are effective July 1st of the identified implementation year.

Management Measure	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	OCC
Trap Limits/Numbers	Trap Cap (800)	Hist. Part.	Hist. Part.	Hist. Part.	Hist. Part.	Hist. Part.	Hist Part. (25% Reduction by 2008)
Gauge Size (2001)	3-1/4"	3-9/32"	3-9/32"	3-1/4"	3-1/4"	3-1/4"	3-9/32"
Gauge Size (2002)		3-5/16"	3-5/16"	3-5/16"	3-5/16"		3-5/16"
Gauge Size (2003)		3-11/32" 3-3/8"	3-11/32"	3-11/32"	3-11/32"		3-11/32"
Gauge Size (2004)		3-3/8"	3-3/8"	3-3/8"	3-3/8"		3-3/8"
Gauge Size (2005)			*3-13/32"			*3-9/32" ⁽¹⁾	*3-13/32"
Gauge Size (2006)			*3-7/16"			*3-5/16" ⁽¹⁾	3-3/8"
Gauge Size (2007)			*3-15/32"				
Gauge Size (2008)			*3-1/2"				
Escape Vent Size @ 3-3/8"		2 X 5-3/4" (2003)	2 X 5-3/4" (2003)	2 X 5-3/4" (2003)	2 X 5-3/4" (2003)	1-15/16 x 5 3/4" (1998)	2 X 5-3/4" (2003)
+Escape Vent Size @ 3-1/2"			*2-1/16 X 5-3/4" (2010)				
V-notch Definition	Zero Tolerance	1/4" v-notch No Setal Hair**	1/4" v-notch No Setal Hair**	1/4" v-notch No Setal Hair**	1/4" v-notch No Setal Hair**	1/4" v-notch No Setal Hair**	1/4" v-notch No Setal Hair
Mandatory V-Notching	Mandatory		Mandatory Above 42° 30'				
Maximum Size	5"	5-1/4" (2008)	7" (2008) 6-7/8" (2009) 6-3/4" (2010)	5-1/4" ⁽²⁾	5-1/2" ⁽²⁾ (2007) 5-1/4" (2008)	5-1/4" (2008)	
Trap Reduction***			5% (2008) 2.5% (2009 and 2010)				

NOTES * - If necessary provisions. At the December 2003 Board meeting, the Board indicated if necessary are necessary unless the Board indicates they are not at a later date EXCEPT Area 6 has a one-year delay.

** On July 1, 2008 the v-notch definition will change A v-notched lobster is defined as any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8 inch, with or without setal hairs. V-notched female lobster also means any female which is mutilated in a manner which could hide, obscure, or obliterate such a mark.

+ Escape Vents increase with gauge sizes in this Area. Please see Addendum III and IV for details.

(1) – At the December 2003 Board meeting, the Area 6 gauge increases were delayed by one year from 2004 & 2005 to 2005 & 2006.

(2) – The maximum size applies only to female lobsters in Management Areas 4 and 5 until June 30. Starting July 1, 2008 the maximum size will apply to both males and females in both the commercial and recreational fishery.

*** Area 3 had sliding scale trap reduction for 2002 to 2006. In 2007 there was 5 % reduction.

Issues:

- There has been ongoing concern about the health of the lobster resource in the Southern New

England stock. Based on the update stock assessment, the board responded with addendum and recommended latent effort. Addendum XI implemented rules in response to this concern. The addendum also calls for LCMA-specific trap reductions to be studied for future implementation with LCMT input. The Plan Review Team (PRT) and the Technical Committee (TC) would examine the status and relative effectiveness of various effort control plans, before future trap reductions are considered. Specifically, the PRT and TC would examine the degree of latent effort that remains in the fisheries as affected by current Effort Control Plans in Areas 2, 3, 4, 5, and 6.

- Federal implementation of several lobster management measures had lagged behind state implementation timelines as the Commission aggressively responded to updated assessment information with the approval of eight Addenda to the ISFMP in the past four years. While Federal lobster permit holders are bound by the more restrictive of either state or Federal regulations, the PRT had noted inconsistencies between state and Federal regulations could impede effective State-Federal enforcement and jurisdictional coordination issues for Areas-specific measures under the ISFMP. On October 5, 2007, the implementation of gauge and vent increases for Area 3, along with a four year, 15%, trap reduction schedule for Area 3, has effectively synchronized Federal regulations with the Commission's ISFMP requirements in all areas exclusive of the Historic Participation ITT Programs in Areas 2, 3, and the Outer Cape. In response to Commission recommendations, in September 2007, NMFS announced plans to evaluate additional Addenda X and XI measures, including mandatory reporting requirements, and broodstock protection measures in Southern New England, scheduled for state implementation by July 1, 2008.

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

All states are currently in compliance with all required measures under Amendment #3, Addendum I-XI. It should be noted that a special compliance review will be made on January 1, 2008 with respect to the new reporting and monitoring requirements of Addendum X.

VII. Recommendations and Issues

The following are issues the Plan Review Team would like to raise to the Board as well as general recommendations:

1. With the impending release of the new stock assessment and the possibility of new reference points, there may be a need for changes to the management program for American Lobster. The PRT recommends the ASMFC conduct a socioeconomic subcommittee evaluate the impacts of the stock assessment results and recommendations on what emphasis should be placed direction of assessment.. assessment of the lobster fishery to serve as baseline information for these management discussions.

The PRT recommends that the Board be presented with the results of the GOM Research Institute and NMFS's socio-economic assessment of the northeast lobster fishery. The report can be found online at the following link: <http://www.nefsc.noaa.gov/nefsc/publications/crd/crd0717/>

2. The PRT believes the ability to judge the success or failure of management measures on management area vs. stock unit basis is critical and recommends that the TC explore further conceptual partial population models (Gavaris, 1996).
3. The PRT is concerned about the ability of the lobster management program to respond to changing

stock conditions and believe this issue should be explore the potential use of biological triggers that could initiate predetermined action through the use of control rules. The PRT suggests the TC evaluate using the new thresholds and target at these biological triggers.

4. The information collected under the ACCSP program will play an integral role in area management and the PRT encourages the full implementation of data collection programs to enhance the ACCSP data collection. Addendum X has initiated data reporting for the lobster fishery. Effective July, 2008, this addendum establishes mandatory 100% coastwide dealer reporting requirements as well as requirements that at least 10% of active harvesters report. The PRT recommends the board continue to move forward with a data collection programs with the objective of adequate sampling as determined by the Technical Committee.
5. The PRT encourages the Board to resolve the issues outline in the ITT and allocation White Paper (ASMFC 2007) that outlines critical issues associated with history-based effort control plans that are based on fishing performance, such as the Area 2 Limited Entry Program. The issues identified in the document are issues that have yet to be resolved consistently across all impacted management agencies, with emphasis on LCMA's that have implemented transferable trap programs. The issues include: assignment of fishing history, especially for individuals whom hold both a state license and Federal permit (dual permit holder); the potential for fishing effort to increase with trap transfers of multi-Area trap allocations; and review of the Most Restrictive Rule for multi-LCMA trap allocations.
6. The PRT suggest the Board explore methodologies to measure the success or failure of management measures to the objectives of the plan.

References:

Balcom and Howell, 2006. "Responding to a Resource Disaster: American Lobsters in Long Island Sound". CTSG-06-02.

Gavaris, S. 1996. "Population stewardship rights: Decentralized management through explicit accounting of the value of uncaught fish, " Canadian Journal of Fisheries and Aquatic Sciences .Ottawa , Can. J. Fish. Aquat. Sci. 53(07):1683-691.