

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Division of Fish and Wildlife  
Marine Fisheries



**2011 Management Plan for the Crustacean Sector**

Developed in association with the  
Commercial fishing licensing provisions set forth in the  
“Rules and Regulations Governing the Management of Marine Fisheries”

**December 29, 2010**

These rules and regulations are promulgated pursuant to Chapter 42-17.1, Section 20-1-4, Section 20-2.1 and Public Laws Chapter 02-047, in accordance with Chapter 42-35 of the Rhode Island General Laws of 1956, as amended.

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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

BUREAU OF NATURAL RESOURCES

FISH AND WILDLIFE &  
LAW ENFORCEMENT

**Rule 1. PURPOSE**

The purpose of these rules and regulations is to manage the marine resources of Rhode Island.

**Rule 2. AUTHORITY**

These rules and regulations are promulgated pursuant to Chapter 42-17.1, Section 20-1-4, Section 20-2.1 and Public Laws Chapter 02-047, in accordance with Chapter 42-35 of the Rhode Island General Laws of 1956, as amended.

**Rule 3. ADMINISTRATIVE FINDINGS**

Rules and regulations are based upon the need to modify existing regulations (RIGL 20-3-2 through 20-3-6).

**Rule 4. APPLICATION**

The terms and provisions of these rules and regulations shall be liberally construed to permit the Department to effectuate the purposes of state law, goals, and policies.

**Rule 5. DEFINITIONS**

See Rhode Island Marine Statutes and Regulations, Part I, '1.3.

**Rule 6. SEVERABILITY**

If any provision of these Rules and Regulations, or the application thereof to any person or circumstances, is held invalid by a court of competent jurisdiction, the validity of the remainder of the Rules and Regulations shall not be affected thereby.

**Rule 7. SUPERSEDED RULES AND REGULATIONS**

On the effective date of these rules and regulations, all previous rules and regulations, and any policies regarding the administration and enforcement of this regulation shall be superseded. However, any enforcement action taken by, or application submitted to, the Department prior to the effective date of these Rules and Regulations shall be governed by the Rules and Regulations in effect at the time the enforcement action was taken, or application filed.

# Rhode Island Crustacean Fishery Management Plan 2011

## Introduction:

Rhode Island general law pertaining to commercial fishing licenses requires that the Director of DEM develop conservation and management plans in support of regulations that may restrict the issuance of licenses (RIGL 20-2.1-9(5)). Restrictions on commercial licenses were clearly contemplated by the Rhode Island General Assembly as a means to limit fishing effort and to rebuild depleted fishery resources (RIGL 20-2.1-2, 20-3.1-2 (4)). Such plans are to be developed with advice from the Rhode Island Marine Fisheries Council (RIGL 20-2.1-10) and shall focus on fishery resources with the greatest value to the state. The current DEM commercial licensing program recognizes three fishery sectors; crustaceans, finfish, and shellfish. The following is the plan for the crustacean sector with recommendations for licensing in 2011. Two crustacean sector license endorsements, lobster and crustaceans other than lobster (crabs, shrimps) are offered by DEM and are considered here. This plan emphasizes American lobster in recognition of their great commercial and recreational value to Rhode Island citizens. The 2010 licensing plan recommended no new lobster licenses in view of the poor resource status and ongoing management activities designed to rebuild the lobster resource in the Rhode Island area.

## American Lobster:

**Stock Status** – The lobster resource in Narragansett Bay and Rhode Island coastal waters (Lobster Conservation Management Area 2, Southern New England lobster stock unit) has been over exploited for many years (ASMFC 1996, 2000, 2006a, 2009, Gibson 2000). A stock decline in 2002 prompted the Atlantic States Marine Fisheries Commission (ASMFC) to initiate emergency remedial action in Lobster Conservation Management Area 2 (Area 2), which includes Rhode Island state waters. The two ASMFC lobster stock assessments conducted since 2002 have concluded that the southern New England lobster stock, including Area 2, is in poor condition based on the recommended biological reference points, is below the abundance threshold, is at or near the fishing mortality threshold, is depleted and at the overfishing threshold (ASMFC 2006a), and is below the effective exploitation threshold (ASMFC 2009)(Table 1).

Agency trawl surveys clearly document the abundance decline that triggered the 2002 ASMFC emergency action in Area 2. Rhode Island Division of Fish and Wildlife (RIDFW) surveys conducted in Narragansett Bay and Rhode Island coastal waters since 1979 show that local lobster abundance dropped from high levels in the mid-1990's to low levels in 2002-2003 (Figure 1). Although recent surveys have caught more lobster, abundance has not recovered to former levels. URI scientists have observed a similar pattern in lobster catches made by the Graduate School of Oceanography survey in state waters (Figure 2). Both Massachusetts and Connecticut have reported lobster declines to the east in Buzzards Bay and to the west in Long Island Sound. The decline in abundance of both sub-legal and legal lobster from 1997 to 2002 was preceded by a steep

decline in the abundance of newly settled lobster from 1990 to 1996 (Figure 3). These abundance patterns are consistent with the generally accepted time lag of 6-7 years between first settlement and attainment of adult size. In addition to reduced settlement, shell disease, oil spills, and increasing predation by finfish have likely increased the natural mortality rate and reduced the number of lobster surviving from settlement to legal size. The combined effects of reduced settlement and declining post-settlement survivorship have impacted the fishery, reducing recruitment, landings and catch per unit effort (CPUE) to lower levels (Figure 4). Given the time lag from settler to adult, the increase in legal abundance observed in 2004-2006 was not unexpected. On a pessimistic note, settlement from 2007-2010 was poor, suggesting that a return to high stock levels is unlikely in the foreseeable future.

The ASMFC lobster technical committee has updated the coast-wide lobster stock assessment including evaluation of new models that can consider increased natural mortality rate. They have also revised their definitions of stock areas and made recommendations for new biological reference points. National and international stock assessment experts have completed a peer review. The ASMFC lobster management board, at their spring 2009 meeting, accepted the assessment results and peer review which have since been published for public information (ASMFC 2009). The new assessment showed that the southern New England (SNE) stock of lobster, spanning the region from Cape Cod to New Jersey, is at low abundance and considered depleted (Figure 5). The above cited assessment results and peer review comments pertain to a broader stock area than the Rhode Island marine waters under jurisdiction of the state. In response to the assessment and peer review, the ASMFC lobster management board authorized development of several addenda to the fishery management plan for lobster pending public comment and further board deliberations.

The ASMFC lobster technical committee recently examined data collected since the 2009 lobster stock assessment (i.e. 2008-2009 data). The SNE stock continues to be below the reference abundance threshold and below the effective exploitation threshold, meaning *the stock is depleted but overfishing is not occurring* (Table 1). Current abundance of the SNE stock is the lowest observed since the 1980s (Figure 5) even though exploitation rates have declined since 2000. More importantly, the 2009 assessment documented recruitment at very low levels throughout the SNE stock between 1998 and 2005. A number of empirical stock status indicators were examined to judge the stock's overall health independent of assessment model results. Abundance indicators for SNE are generally negative or neutral while fishing mortality indicators are mixed. In the offshore waters covered by the NMFS survey and deeper near shore waters covered by the RI survey, exploitation rates have been neutral or positive for the 2005–2007 time period. However, exploitation for Long Island Sound and the inshore waters of NJ are negative, with the exception of the NJ Fall Survey which is neutral. Fishery performance indicators are generally negative, reflecting the fact that catches and abundance are cascading downward. In general, stock indicators and model results both reflect the same stock status: overall abundance, spawning stock biomass, and recruitment are all at low levels throughout SNE lobster stock; the stock has not rebuilt since the last assessment and is still in poor condition.

**Management Program** – Lobsters are managed within state waters by the Rhode Island Department of Environmental Management (RIDEM) with advice from the Rhode Island Marine Fisheries Council and RIDFW. Regional management of the lobster resource is the responsibility of the ASMFC. Amendment 3 to the fishery management plan (ASMFC 1997) and associated addenda govern the interstate management program and peer reviewed coast wide stock assessments (ASMFC 2000, 2006a, 2009) provide information on lobster biology and resource status. The ASMFC management program is organized by lobster management area with Rhode Island state waters part of Area 2. RIDEM complies with the Area 2 plan through a set of management measures that includes minimum gauge and escape vent sizes, trap limits, protection of egg-bearing females, and v-notching. Both state (RI-MA) and federal waters are included in Area 2 making cooperative management essential. The plan for Area 2 initially required reductions in trap deployment in addition to a set of gauge and escape vent size increases in order to rebuild egg production to the minimum F10% level. The Addendum VII plan was structured to include transferability of lobster trap allocation, and includes a 10% conservation tax on trap allocation transfers which is expected to result in further reductions in the amount of traps deployed in Area 2 over time. The transferability provisions for Addendum VII are currently under development by ASMFC, but have not been implemented at the present time. New interim biological reference points were adopted via ASMFC addendum VIII in 2006 and a rebuilding timeline with technical measures via ASMFC addendum XI were adopted in 2007. These actions were taken to remedy the over-fished condition identified in the 2006 stock assessment. Currently, ASMFC draft addendum XVI is being developed to establish new reference points for determination of lobster stock status.

Additionally, in response to the April 2010 ASMFC Lobster Technical Committee report on recruitment failure in the SNE lobster stock, the ASMFC Lobster Management Board called for development of an addendum to address a recommended 50-75% reduction in the exploitation rate on lobster in the SNE stock. The ASMFC also contracted the services of the Independent Center of Experts (ICE) to conduct a review of the 2009 stock assessment and technical committee report on recruitment failure in SNE; the ICE essentially confirmed the lobster technical committee findings and recommendations.

### **Fishery Management Goals and Objectives -**

Goal- The following goal is adapted from the coast wide goal of the Atlantic States Marine Fisheries Commission (ASMFC 1996).

*Rhode Island will have a healthy American lobster resource and a fishery management regime, which provides for sustainable harvest, cooperative management by stakeholders, and appropriate opportunities for fishery participation.*

## Objectives-

1. Maintain fishing mortality rates and brood stock abundance at levels, which minimize the risk of stock depletion and recruitment failure.
2. Extend size-age composition of the resource and increase yield per recruit in the fishery while maintaining harvest at a sustainable level.
3. Maintain existing social and cultural characteristics of the fishery wherever possible
4. Promote economic efficiency in harvesting and use of the resource
5. Provide for adaptive management that is responsive to unanticipated short-term events or circumstances.
6. Increase understanding of American lobster biology and improve data collection, stock assessment models, and relationships between harvesters and scientists.

## Licensing Options and Recommendations-

Current Rhode Island lobstermen fishing in state waters must hold either a multipurpose license, lobster principal effort license, or commercial fishing license endorsed for lobster to fish for lobster, as allowed for by existing state and ASMFC regulations. The licensing statutes require that the Director of DEM specify by rule the status of the lobster resource each year and the availability of new lobster licenses. A limited number of individuals were issued limited access, basic commercial fishing licenses in 2003. These licenses allowed for a 100-pot deployment rather than the 800 pot, full access deployment. As a result of implementation of Addendum VII, all license holders are now limited to fishing a number of traps based on their individual lobster landings and trap deployment history during the years 2001-2003 (or 1999-2000 in cases of a proven medical or military service hardship during the years 2001-2003). No new lobster licenses were recommended or issued by RIDEM for 2010, and none are recommended by RIDEM for 2011.

**RI Marine Fishery Council Advice-** The Industry Advisory Committee (IAC) of the RIMFC, required under RIGL 20-2.1-11, met in 2010 to formulate advice for the Council on licensing. The IAC recommended status quo for the lobster fishery regarding licenses (i.e. no new lobster licenses) and encouraged the Director to implement lobster trap allocation transferability regulations.

**RIDFW Recommendations-** It is clear from the above information that the regional lobster resource has undergone a decline in abundance and fishery performance. The decline has imposed substantial economic hardship on industry that has responded with attrition. Recently, the local stock has shown signs of increase but biomass remains below that needed for MSY. The regional rebuilding effort undertaken by the ASMFC has not yet been completed. Additional restrictions may be placed on existing fishers in 2010-2011 via addendums to the interstate fishery management plan including a prohibition on issuance of new Area 2 permits. This prohibition includes state lobster licenses and landing permits applicable to lobster. The finding of reduced resource status (biomass below threshold level) is inconsistent with Rhode Island fishery conservation

standard A of RIGL 20-2.1-9. In view of ASMFC compliance requirements and state law, it is recommended that no new lobster licenses be issued for 2011. The state should continue to work with the RIMFC and ASMFC to further reduce fishing mortality and to rebuild the lobster resource throughout the region. Attrition is clearly occurring in the industry and contributing to reduced fishing effort. The state should strive to neutralize latent effort so that it cannot activate as resource conditions improve. Participation in Area 2 is based on historical performance and the state has reviewed lobster licensing and made appropriate changes in preparation for limited access-historical performance. A transferability program is under development in consultation with ASMFC. This can be used to bring new individuals into the fishery without increasing effort above that qualified in the initial trap allocation.

### **Other Management Considerations-**

Industry has worked closely with the ASMFC and RIDFW to implement the effort control program approved by the ASMFC lobster management board. Continued agency/industry cooperation is needed as implementation of transferability and historic participation schemes proceeds throughout the region. These programs, although controversial in some quarters, provide the best long-term mechanism to reduce lobster fishing effort. Industry has also expressed support for a replacement for the North Cape v-notching program that ended in July of 2006. As noted above, this program had reduced the fishing mortality rate on female lobsters locally and egg production by v-notched females was a substantial component of egg production during 2002-2006. However, this component of egg production has decreased drastically since the termination of the North Cape v-notching program. Re-evaluation of this program in the context of achieving ASMFC stock rebuilding targets should occur. DEM strengthened v-notch protection by implementing a more restrictive v-notch definition on September 12, 2006. The intent was to increase the longevity of v-notched lobsters and encourage industry to practice voluntary notching. Abundance of v-notched lobster declined in 2007 and 2008. This warrants close monitoring since industry based v-notching post North Cape is needed to keep mortality rates low on female lobster. Finally, industry supports continuation of the un-vented trap survey begun in 2006 as the primary abundance-monitoring tool for lobster. Continued federal funding to Rhode Island is needed to continue this survey.

### **Other Crustaceans:**

**Stock Status** – The commercial crab fishery in state waters is relatively small with landings of green, Jonah, rock, and blue crabs being made. Total Rhode Island landings of these species is currently about 4.2 million pounds and worth about 2.2 million dollars. However, only a small amount of this is taken from state waters. Landings of deep-sea red crabs are also made but these come strictly from federal waters and participation is limited by federal permit. Fishing mortality rate has recently exceeded the  $F_{msy}$  level (Figure 6) and should be monitored in the future. Biomass however was above the  $B_{msy}$  level so the Rock and Jonah crab resource is not considered over-fished at this time (Figure 7). There is not sufficient data to assess other crab species in state waters at this

time. The introduction of the Japanese shore crab (*Hemigrapsus sanguineus*) has been noted and may have as yet unknown consequences for other crab species.

The horseshoe crab, although not a true crab, is also harvested. Horseshoe crabs in Rhode Island were found to be over-fished and at low abundance in the first RIDFW assessment (Gibson and Olszewski 2001). A commercial quota system with additional seasonal harvest restrictions has been instituted and landings have been reduced. An update of the stock assessment shows that while fishing mortality rate has been reduced to below the  $F_{msy}$  reference point, stock abundance has not yet recovered toward  $B_{msy}$  (Figures 8 and 9).

**Management Program** – Horseshoe crabs and crustaceans other than lobster are managed in state waters by the Department of Environmental Management with advice from the Rhode Island Marine Fisheries Council. The Department uses seasons, quotas, and possession limits to manage the state waters fishery. Compliance with an ASMFC management plan is required in the case of horseshoe crabs and is achieved with a commercial quota and permitting system.

**Fishery Management and Licensing Recommendations** – Crab abundance is stable so that no new restrictions are needed. The recent increase in cancer crab landings should be monitored. The spawning period closures have greatly restricted the horseshoe crab fishery and reduced fishing mortality rates. No additional limits are needed at this time. New commercial licenses for these species need not be limited and can have harvest levels equal to current licensees. The permit to harvest horseshoe crabs could be added as an endorsement through the office of Licensing. In order for the Division to react in a timely fashion to fishery landings, the reports should continue to be submitted in the current manner. However it should be noted that with un-restricted access to the horseshoe crab fishery, the likelihood of an early closure date due to an exhausted quota is high. With a quota based management regime there is no biological reason for limiting access however as effort increases so do landings.

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Table 1 - Revised threshold reference points with stock status variables for the Southern New England lobster stock unit.

Variable	SNE
<b>Effective Exploitation</b>	
Effective Exploitation Threshold	0.44
Recent effective exploitation 2005-2007	0.32
Effective Exploitation Below Threshold?	YES
<b>Reference Abundance (number of lobster)</b>	
Abundance Threshold	25,372,700
Recent Abundance 2005-2007	14,676,700
Abundance Above Threshold?	NO

Table 2 - Rhode Island Lobster License Issuance Data, 2003-2010

License Type	YEAR							
	2003	2004	2005	2006	2007	2008	2009	2010
Total Multi-Purpose Licenses (MPL)	1191	1135	1075	1019	973	939	917	891
MPL w/ lobster endorsement*	1191	1135	1075	1019	973	939	917	891
MPL ordered trap tags (State only/Area2)**	265	243	228	207	154	172	148	156
MPL w/ lobster trap allocation (State only/Area2)*					210	219	215	210
MPL ordered trap tags (Federal/Area 2)**	130	130	119	108	95	91	87	89
MPL w/ lobster trap allocation (Federal/Area 2)*					112	111	112	104
Total Principal Effort Licenses (PEL)	1325	1148	997	930	862	810	776	735
PEL w/ lobster endorsement*	61	56	52	46	45	44	40	38
PEL ordered trap tags (State only/Area 2)**	25	21	19	18	20	17	17	17
PEL w/ lobster trap allocation (State only/Area 2)*					23	22	22	21
PEL ordered trap tags (Federal/Area 2)**	16	15	15	10	12	12	13	13
PEL w/ lobster trap allocation (Federal/Area 2)*					14	14	15	15
Total Commercial Fishing Licenses (CFL)	271	283	317	397	464	421	433	452
CFL w/ lobster endorsement***	50	48	41	38	32	27	22	19
CFL ordered trap tags (State only/Area 2)**	24	16	13	10	6	6	6	6
CFL w/ lobster trap allocation (State only/Area 2)***					9	8	8	8
CFL ordered trap tags (Federal/Area 2)**	0	2	2	2	2	2	1	1
CFL w/ lobster trap allocation (Federal/Area 2)***					2	2	2	1
Total Effective Lobster Licenses	1302	1239	1168	1103	1050	1010	979	948
Total Effective Lobster Licenses w/ trap allocation	0	0	0	0	370	376	374	359

\* 800 trap limit during 2003-2006; individual history-based lobster trap allocation starting in 2007; all MPL licenses are endorsed to take lobster

\*\* 2003-2010 used trap tag orders as proxy for "effective" lobster licenses

\*\*\* 100 trap limit during 2003-2006; individual history-based lobster trap allocation starting in 2007

Figure 1- Lobster Abundance in the RIDFW Fall Trawl Survey in Narragansett Bay and RI Coastal Waters, 1979-2009

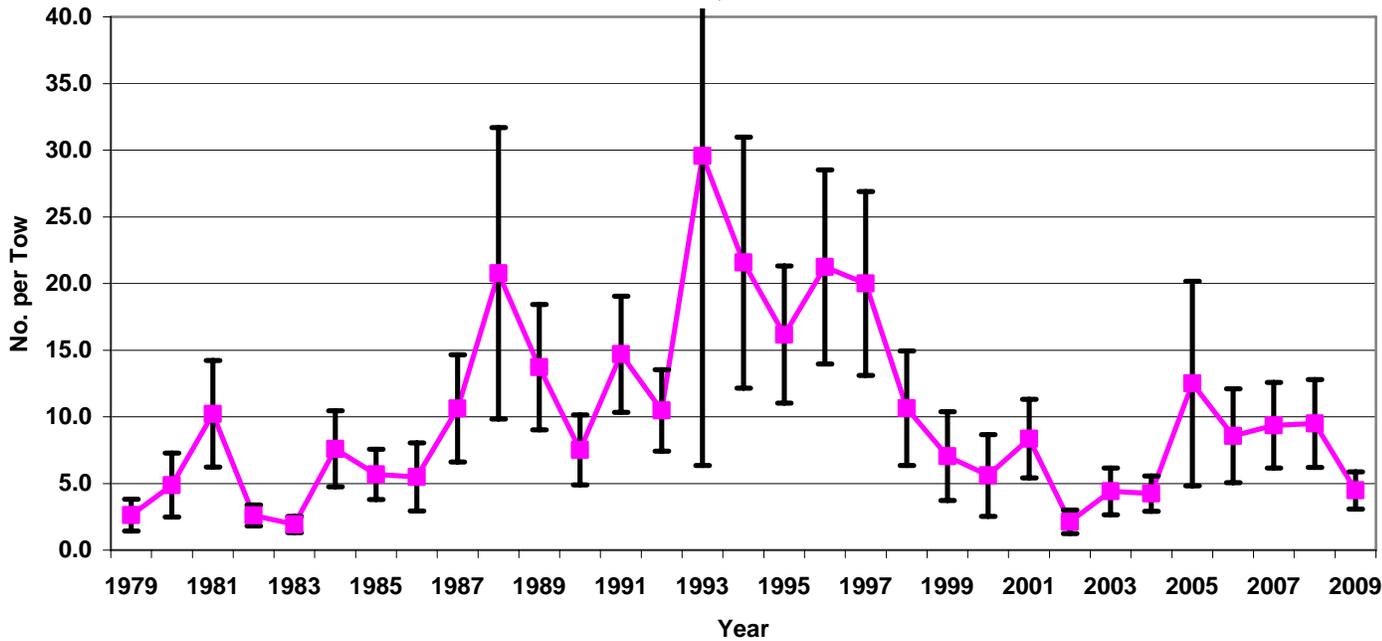


Figure 2- Lobster Abundance in the URIGSO Trawl Survey in Narragansett Bay, 1979-2009

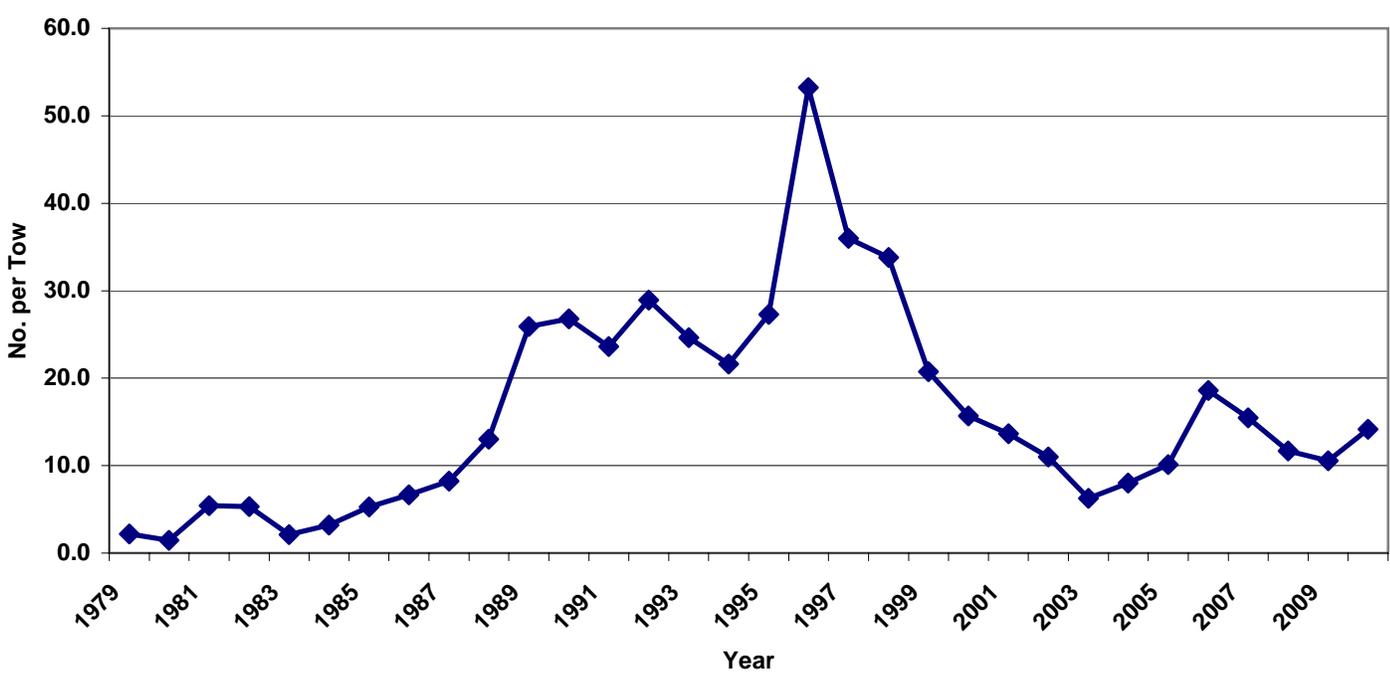
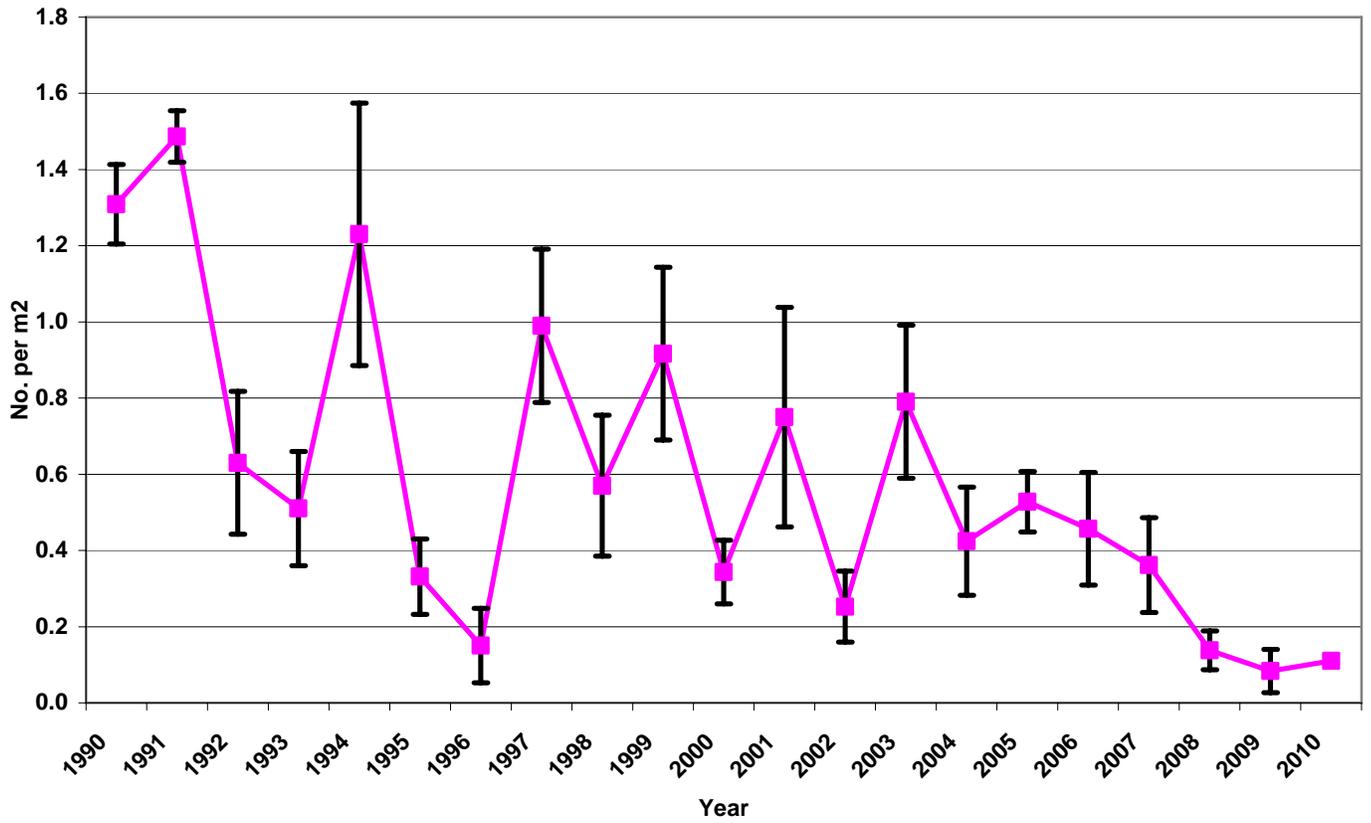


Figure 3 - RI YOY Lobster Settlement Index from Wahle-F&W Dive Survey, 1990-2010.



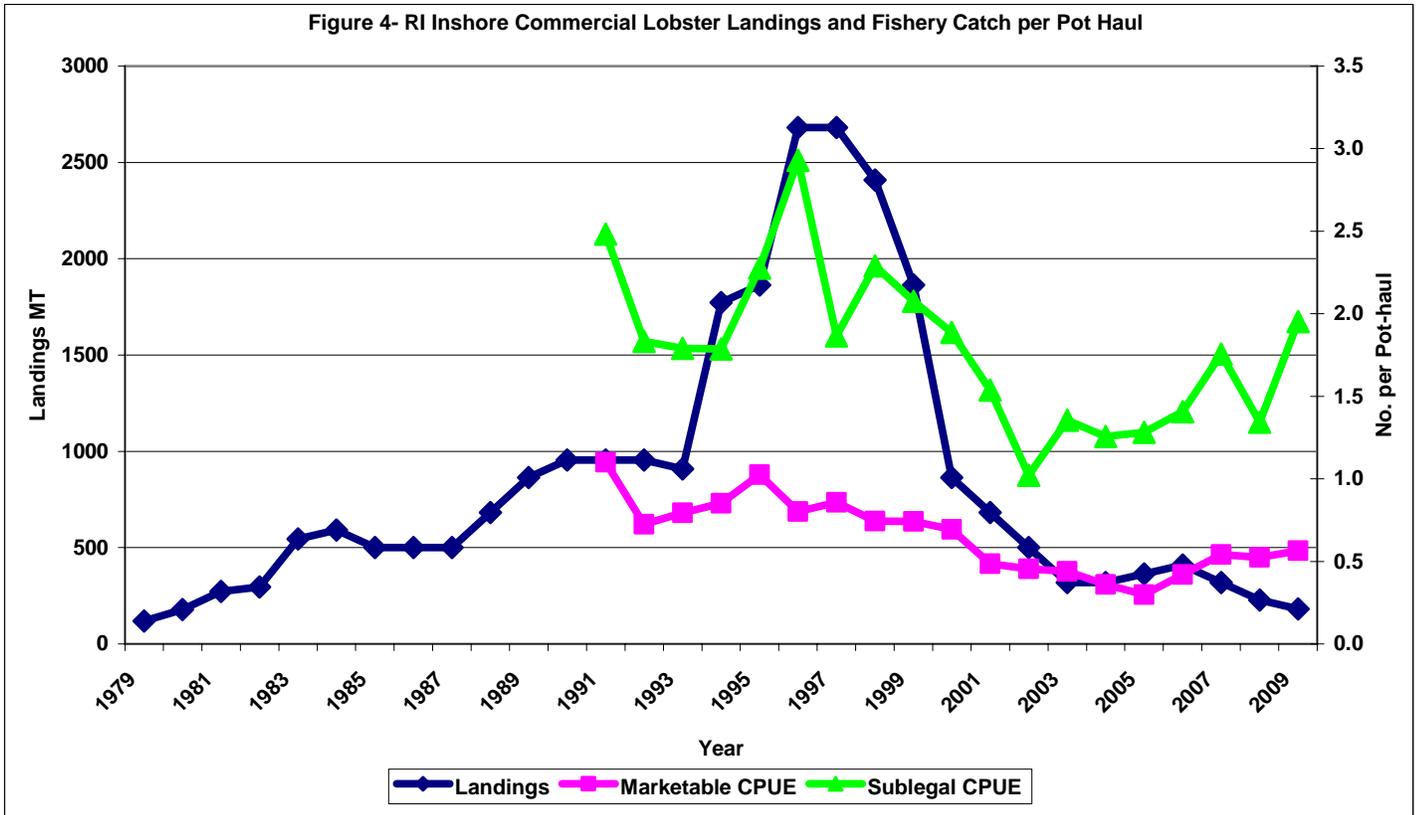


Figure 5 – Total lobster abundance as estimated by the University of Maine Length Based Model in the 2009 lobster stock assessment. The median (yellow) and 25<sup>th</sup> percentile (red) of the 1984-2003 reference period are noted.

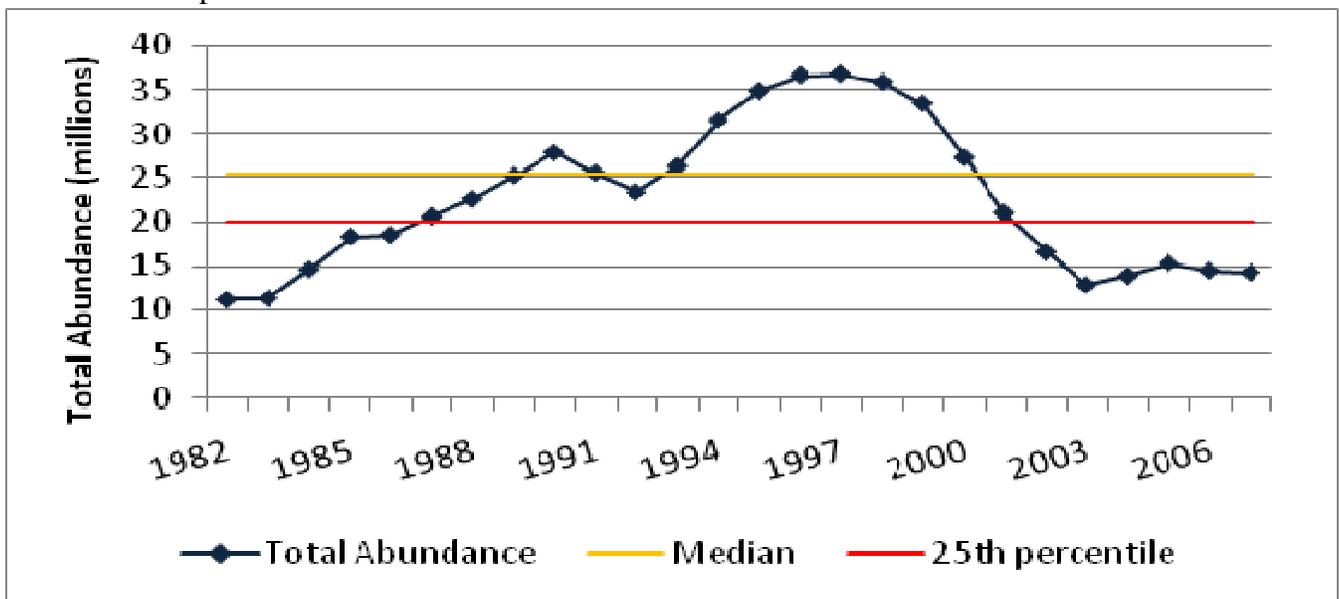


Figure 6 - RI Cancer Crab Fishing Mortality Rate Compared to MSY Reference Level

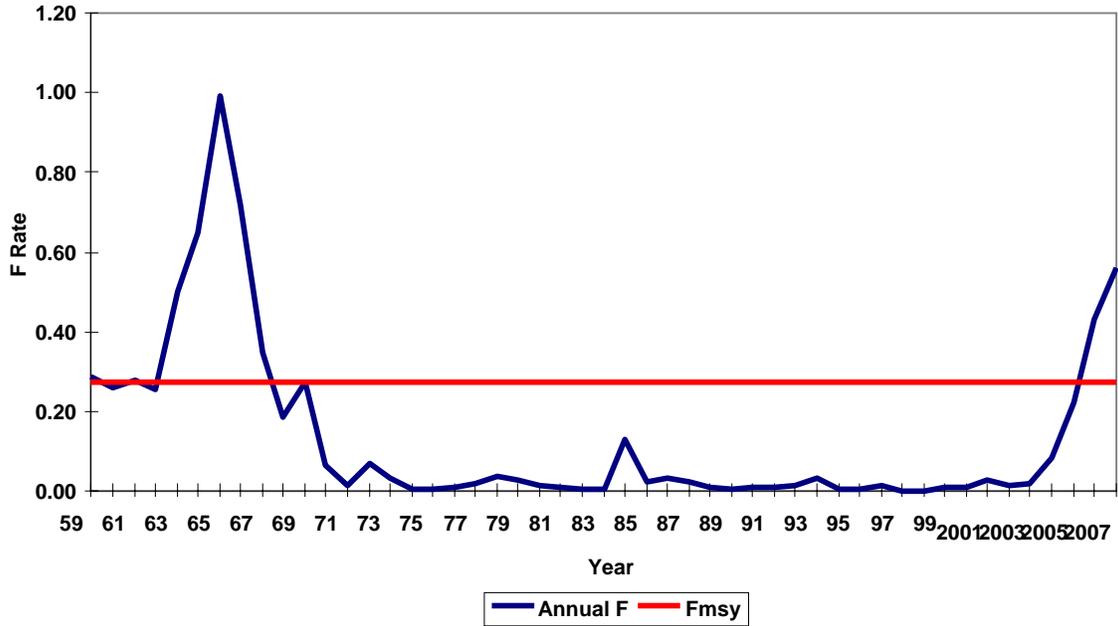


Figure 7 - RI Cancer Crab Abundance and Landings Compared to MSY Reference Level

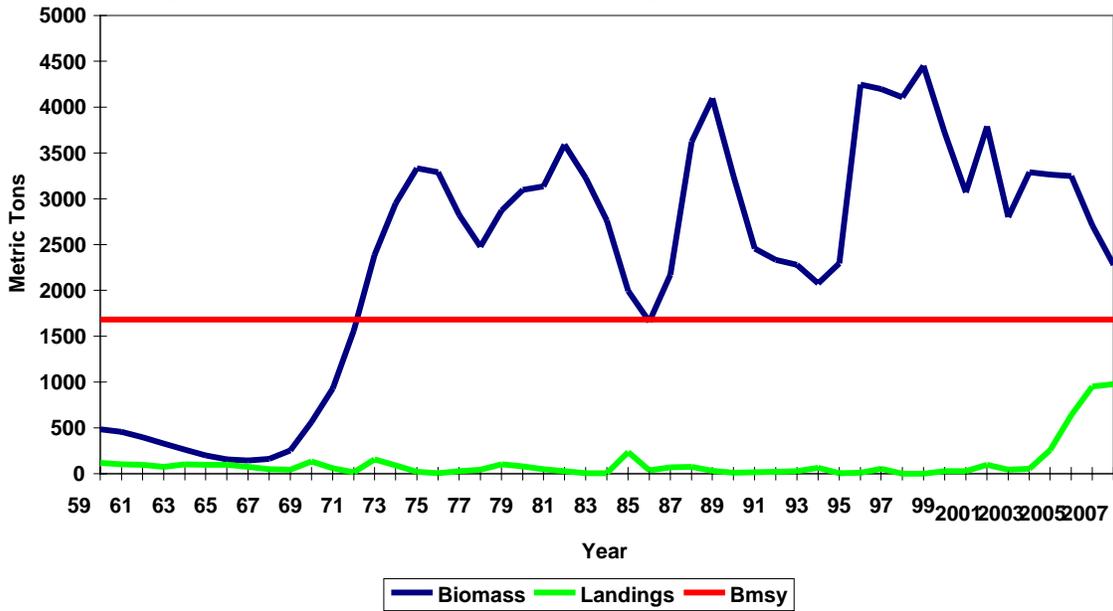


Figure 8 - RI Horseshoe Crab Abundance and Landings Compared to MSY Reference Level

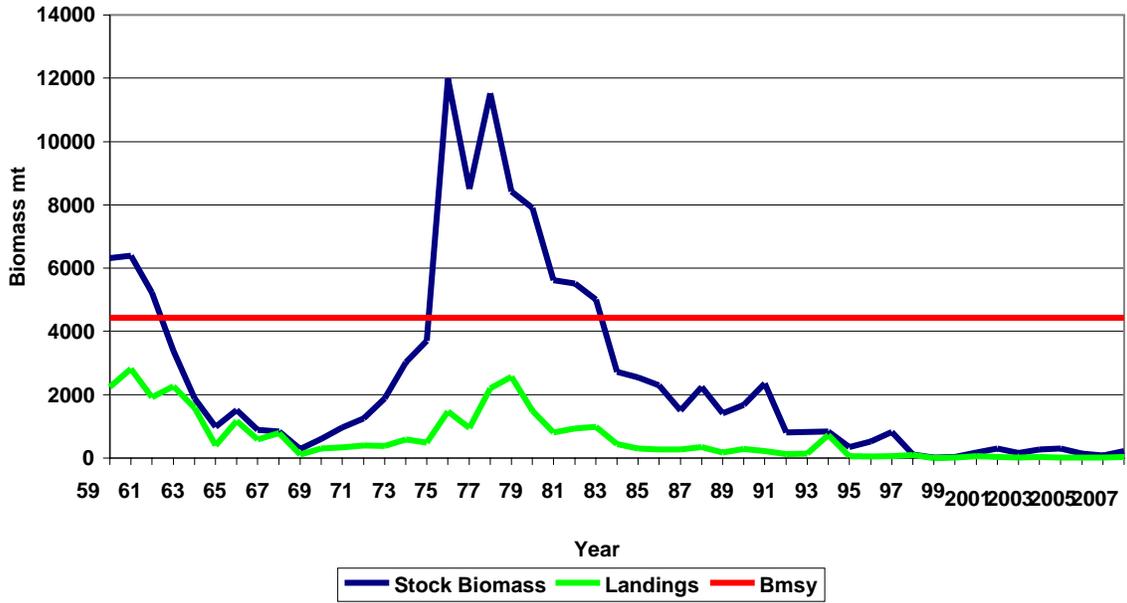
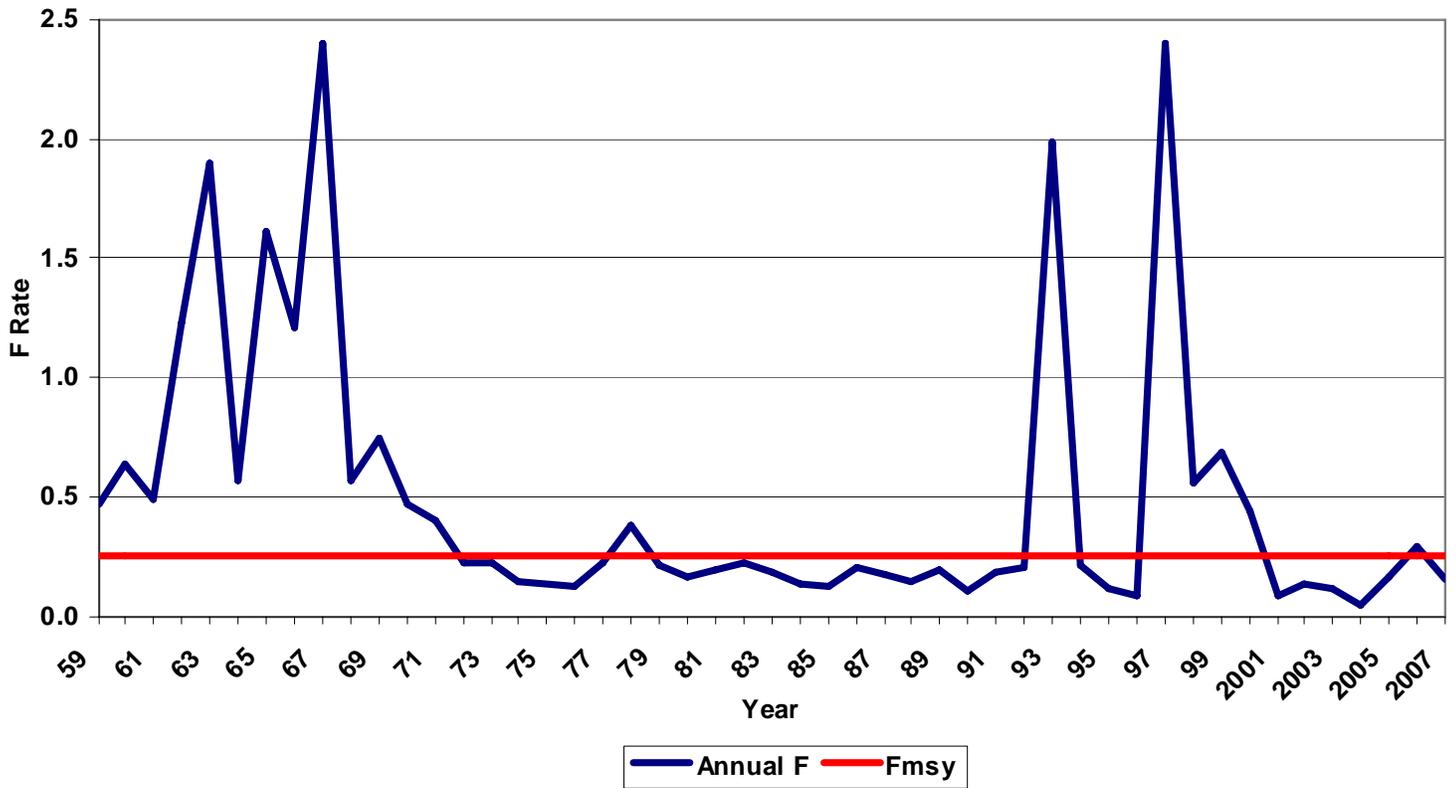


Figure 9 - RI Horseshoe Crab Fishing Mortality Rate Compared to MSY Reference Level



## Rule 8. EFFECTIVE DATE

The foregoing rules and regulations Rhode Island Marine Statutes and Regulations, after due notice, are hereby adopted and filed with the Secretary of State this 29<sup>th</sup> day of December, 2010 to become effective 20 days from filing, unless **otherwise indicated below**, in accordance with the provisions of Chapter 42-17.1, Section 20-1-4, Section 20-2.1 and Public Laws Chapter 02- 047, in accordance with Chapter 42-35 of the Rhode Island General Laws of 1956, as amended.

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W. Michael Sullivan, PhD  
Director, Department of Environmental Management

Notice Given: 09/16/2010  
Public Hearing: 10/19/2010

Filing date: 12/29/2010  
Effective date: 01/18/2011