RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF FISH AND WILDLIFE
MARINE FISHERIES SECTION

PUBLIC NOTICE CONCERNING PROPOSED REGULATORY CHANGES

Pursuant to the provisions of Chapters 42-17.1 and 20-3 of the General Laws of Rhode Island as amended, and in accordance with the Administrative Procedures Act Chapter 42-35 of the General Laws, the Director of the Department of Environmental Management (DEM) proposes amendments to the Rhode Island Marine Fisheries Regulations and gives notice of intent to hold a public hearing to afford interested parties the opportunity for public comment.

Public comment will be solicited on the following proposals:

1) Finfish Sector Management Plan for 2015;
2) Shellfish Sector Management Plan for 2015;
3) Crustacean Sector Management Plan for 2015;
4) Amendments to the RI Marine Fisheries regulations, "Commercial and Recreational Saltwater Fishing Licensing Regulations".

The public hearing will commence at **6:00 PM** on **Tuesday, September 30, 2014** in the University of Rhode Island, Graduate School of Oceanography, Corless Auditorium, South Ferry Road, Narragansett, RI 02882. The room is accessible to the disabled. Interpreter services for the deaf and hard of hearing will be provided if such services are requested at least two (2) weeks prior to the hearing by contacting the RI Commission on the Deaf and Hard of Hearing at (401) 222-5300; or (401) 222-5301 (TTY); or http://www.cdhh.ri.gov/.

The Department has determined that small businesses may be adversely impacted by the proposed regulations. Small businesses which are either currently licensed, or in the future may seek a license to harvest, buy, sell, or produce seafood products, as well as the small businesses that provide services related to those engaged in such industries, are requested to comment on the proposed regulations on how such proposed action can be changed to minimize the impact on those small businesses affected.

Written comments concerning the proposed regulations may be submitted to Peter Duhamel, Division of Fish and Wildlife – Marine Fisheries office, 3 Fort Wetherill Road, Jamestown, RI 02835 no later than 12:00 Noon on September 30, 2014. A copy of the proposed regulations will be available for review from August 29 through September 30, 2014 at the Marine Fisheries offices, or by mail. A copy of the proposed regulation(s) will also be available on the DEM website at the following web address: http://www.dem.ri.gov/programs/bnatres/fishwild/pn093014.htm.

Mark Gibson,
Deputy Chief

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF FISH AND WILDLIFE
MARINE FISHERIES

2015 Sector Management Plan for the Shellfish Fishery

Developed in association with the commercial fishing licensing provisions set forth in the "Commercial and Recreational Saltwater Fishing Licensing Regulations"

FILING DATE

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Authority: R. I. Gen. Laws Chapter 42-17.1, Section 20-1-4, and Section 20-2.1-9, in accordance with Chapter 42-35 of the Rhode Island General Laws of 1956, as amended.

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

AUTHORITY
These rules and regulations are promulgated pursuant to Chapter 42-17.1, Section 20-1-4, and Section 20-2.1-9, in accordance with Chapter 42-35 of the Rhode Island General Laws of 1956, as amended..

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.

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.

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

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2015 Sector Management Plan for the Shellfish Fishery

QUAHAUG ENDORSEMENT

Commercial Landings: There are two very distinct peaks in commercial landings of quahaugs in Rhode Island since 1947, the first occurred in 1955 followed by a rapid decline until 1974 and then a second peak in 1985 (Figure 1). Landings reached an all time low in 2009 (Figure 1) but there has been an increasing trend in both landings and catch per unit effort since then (Figure 2). In 2013 landings totaled 2,759 metric tons (6.08 million lbs., Table 1), which is a 12% decrease from 2012. According to the Standard Atlantic Fisheries Information System (SAFIS) reporting system, 83% of the landings were harvested from Greenwich Bay, Conditional Areas A & B, and the West Passage of Narragansett Bay (Table 1). Most of the quahaugs landed by count are littlenecks (64%), followed by top-necks (23%), chowders (10%) and cherrystones (3%).

Resource Assessment: RI Division of Fish and Wildlife (DFW) conducts a survey of quahaugs in Narragansett Bay on an annual basis that commenced in 1993 (Ganz et al 1999). Both fished and unfished sections of the bay are sampled. The sampling consists of towing a small hydraulic dredge (0.36 meter sweep) for a distance of 30.5 meters (100 ft) at each station. Pressurized water is delivered to the dredge manifold which dislodges shellfish from the substrate. The dredge is designed to retain legal-sized quahaugs (> 25.4mm thickness). All species retained in the dredge when hauled are identified and all shellfish are counted and measured. Based on the survey, the stratified mean density of quahaugs in Narragansett Bay has been fairly constant through the duration of the survey typically around 2-3 quahogs per square meter.

In short, the Department evaluated the quahog dredge survey design in 2006 and suggested a change from sampling the entire bay in one year to a rotational design that would accommodate additional sampling in each strata. In 2008 the Department started to implement a partially-revised survey design; however, minimal survey work was conducted in 2010-2011 due to vessel age and repair needs. In 2012 the annual survey employed a fully-reconfigured design to increase sampling in specific strata in a given year, ultimately allowing all strata to be sampled over several years rather than in a single year as in years past. In addition, research is being conducted to improve the precision of the survey by relating observed quahaug densities to mapping of submerged sediments. In general, the reconfiguration is designed to increase sampling intensity so that the number of samples per strata is sufficient to produce precise estimates of biomass by size class. In 2012 Greenwich Bay and the High Banks Management Area and surrounding waters were sampled extensively (Figure 3). At the request of industry, the High Banks Management area was opened year round beginning May 1, 2013 after it was determined that the area could sustain higher levels of harvest based upon the surveys and landings data from SAFIS. In 2013 a large portion of the northern Bay were sampled and the remaining stations in the Bay

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will be sampled in 2014.

Management Program: Quahaugs are managed entirely within state waters by the RI Department of Environmental Management (DEM) with advice from the Rhode Island Marine Fisheries Council (RIMFC). The DEM, through the DFWDFW, uses a set of management areas and a rotational transplant/harvest system to manage the resource. Permanent and conditional pollution closures restrict the fishery in addition to seasons, possession limits, and management closures.

Fishery Management Goals and Objectives:

Goal: The following goal is consistent with the objectives of the Rhode Island quahaug management plan (Ganz et al. 1999).

> *Rhode Island will have a healthy bay quahaug 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 that minimize the risk of stock depletion and recruitment failure.
2. Conserve, enhance, and rebuild quahaug resources in Narragansett Bay and the coastal ponds with appropriate management strategies including transplanting, area closures, establishment of spawner sanctuaries, and daily possession limits based upon sustainability.
3. Maintain existing social and cultural characteristics of the fishery wherever possible.
4. Provide for cooperative management with industry and efficient operation, consistent with biological objectives.
5. Provide for adaptive management that is responsive to unanticipated short term events or circumstances via establishment of shellfish management areas.
6. Provide for a simple, uniform, and enforceable set of regulations.

Fishery Management and Licensing Recommendations: A 2:1 exit/entry ratio for the quahaug fishery was implemented in 2011. In 2013 RIDEM issued a total of 181 quahaug endorsements for the basic commercial fishing license (CFL) which have limited harvest levels of 3 bushels per day state wide. Thirty of these were to new fishermen who did not have a quahog endorsement the previous year. In total, there were 84 CFL licenses that reported landings on at least one day. Of these fishermen reporting landings the average number of days fished was 39 days with an average catch of 995 quahogs per day.

In 2014 the Department issued 347 Principal Effort Licenses (PEL) with quahaug

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endorsements compared to 376 in 2013, a decrease of 29 licenses. PEL license holders with quahaug endorsements have access to full harvest levels. Of the 376 PEL licenses issued, 182 licenses reported landing quahogs on at least one day. Of those reporting landings the average number of days fished was 71 days with an average of 1,148 quahogs landed each day. In addition, 816 multipurpose (MPURP) licenses were issues in 2014 which also have access to full harvest levels. There were 202 MPURP license holders who reported quahog landings on at least one day and the average number of days fished amongst these fishermen was 63 days with an average of 1,236 quahogs landed each day.

There are two additional license categories that are not subject to the 2:1 exit:entry ratio and are restricted to basic harvest levels. Student shellfish licenses decreased by 1 (from 48 in 2013 to 47 in 2014) but only 19 of these licenses reported any landings in 2013. The average number of days fished by this license group was 28 days and the daily average catch was 273 quahogs. Over 65 shellfish licenses increased by 21 (268 in 2013 to 289 in 2014). Only 26 of these license holders reported any landings in 2013 and the average number of days fished by this license group was 11 days. The average daily catch was 1,592 quahogs.

The provision set forth in the RI Marine Fisheries Commercial and Recreational Saltwater Fishing Licensing Regulations Section 6.7-4 (e) was continued in 2014 allowing an actively fishing CFL license holder with a quahaug endorsement to upgrade to a PEL license with a quahaug endorsement and an actively fishing student shellfish license holder to upgrade to a CFL with a quahaug endorsement after two years of reporting landings and no violations.

DFW believes that the number of individuals that are licensed to fish in this fishery and the number of active fishers is more an industry-based economic issue than a resource management issue. As such, the number of people participating in the fishery is becoming less relevant from a resource management perspective.

RI Marine Fisheries Council Advice: Pending

Future Management Considerations and Recommendations: DEM needs to continue to work with industry to ensure a healthy quahaug fishery consisting of resource sustainability and a licensing system that will maintain an active group of fishermen and facilitate entry of new participants. The state is currently in the process of developing a comprehensive Shellfish Management Plan that will be completed by the end of 2014. The plan puts forth many recommendations that should be considered for implementation in the near future.

Continued improvements in the landings data collection system along with DFW resource surveys will provide for accurate evaluation of standing stock and allow for sound management. Acquisition of fishery landings by market class and tagging areas allow for area specific assessment and management. The ability of DFW to manage the resource would be further increased by improved compliance with reporting tagging areas accurately and by reducing the size of some of the larger

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tagging areas. In concert with transplanting and spawner sanctuaries, other area specific regulations are already established and could be refined to maximize sustainable harvest. In particular, the western Greenwich Bay Management areas have seen a dramatic reduction in biomass and CPUE in recent years despite the reduced Winter Harvest Schedule. Further reductions in the number of days open for fishing in these areas may be warranted.

The Narragansett Bay Commission's combined sewer overflow project combined with more-intensive water quality monitoring by RIDEM Office of Water Resources (OWR), has resulted in water quality improvements in the Providence River as well as a decreased number and duration of rainfall-induced closures in Conditionally Closed Areas "A" and "B". The high densities of quahaug broodstock observed in the Providence River combined with prior rainfall-induced closures in the Conditionally Closed Areas have resulted in a significant and sustained level of harvest. In order to sustain this harvest, it is recommended that an area-specific assessment and management plans be developed and implemented for the Providence River, Conditional Area "A", Conditional Area "B" and the recently established "Conimicut Triangle". Alternatives include, but are not limited to, establishing new shellfish management areas, establish area-specific fishing periods, and adopting realistic possession limits.

SOFT-SHELL CLAM ENDORSEMENT

Commercial Landings: Commercial landings of soft-shell clams in Rhode Island showed an increasing trend from the early 1980's until 2007 (Figure 4) but in recent years have been in decline (Figure 5). Soft shell clams were down 93.4% statewide in 2013 when compared to 2010. With the introduction of SAFIS, landings data have been coded by area allowing for evaluation of landings by area (Table 2) and by catch per unit effort (Figure 5). For the past two years the majority of landings have come from the Coastal Ponds comprising 64% of the landings statewide. The harvest in the upper portions of Narragansett Bay was down to only 2.4% of the landings observed in 2010.

Resource Assessment: Soft-shell clam resources are distributed from inter-tidal to sub-tidal zones of Narragansett Bay and the coastal ponds and estuaries. Prior to 2012 the bulk of the biomass was located in the Upper Narragansett Bay, particularly in the Conimicut Point area. In recent years, due to the successful results from the Narragansett Bay Commission's combined sewer overflow project, measurable water quality improvements were recorded in the Providence River resulting in a substantial reduction in the number of rainfall-induced closures in Conditionally Closed Areas "A" and "B" and opening of new areas, such as the new soft-shell clam grounds in the Conimicut Pt Area called the "Conimicut triangle". The Conimicut triangle area opened on June 13th, 2010 with the only change to the existing regulations consisting of increasing the minimum size from 1 ½" to 2". The daily catch limit of 12 bushels was not changed resulting in the biomass being depleted to less than 1/10th it's former abundance, and follow up surveys in the fall

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of 2011 showed astoundingly low densities (Gibson 2012).

A dynamic depletion model for open populations based on the work of Restrepo (2001) and Sosa-Cordero (2003) was recently developed and applied to monthly catch and effort data for the period 2006 to 2011 (Gibson 2012). The preliminary depletion model results suggest that the population is declining from 2006 to present with recruitment failing to replace fishery removals (Gibson 2012). Although the model could benefit from another year of data, present results suggest that the recent increase in minimum size will not by itself stop overfishing and catch limits may need to be reduced to < 3 bushels per day to bring fishing mortality rate into balance with resource productivity (Gibson 2012).

Fishery Management and Licensing Recommendations: Soft-shell clams are managed entirely within state waters by DEM with advice from the RIMFC. For 2008, in response to increased landings and evidence of population decline in upper Narragansett Bay, DEM limited the number of eligible participants in the fishery to the level present in 2007. The DEM issued 155 CFL licenses and 204 PEL licenses with soft-shell clam endorsement for 2014 with 12 new CFL licenses with soft shell endorsements issued. Other restrictions in the fishery include permanent and conditional pollution closures, establishment of Conimicut Shellfish Management Area, a daily possession limit reduction from 12 bushels per day to 3 bushels per day in the area, and a recent minimum size increase to 2 inches statewide.

RI Marine Fisheries Council Advice: **Pending**

Future Management Considerations and Recommendations: The Narragansett Bay Commission's combined sewer overflow project combined with more-intensive water quality monitoring by RIDEM OWR, has resulted in further water quality improvements in the Providence River as well as decrease the number of rainfall-induced closures in Conditionally Closed Areas "A" and "B". In 2013 RIDEM OWR again modified the boundaries and rainfall thresholds of Conditional Area C (the Conimicut triangle). Landings of soft-shell clams at Conimicut Point area have declined significantly since the overfishing that took place in 2010 and there were NO landings reported in the Conimicut Triangle for 2012 or 2013, although it is suspected that some landings did occur and were misreported as Conditional Area B. Stocks could further decline without implementation of more realistic and sustainable management measures. The isolated characteristics of the Conimicut Point fishery make the clams particularly vulnerable to variations in fishing effort. Additionally, a permanent pollution closure line bisecting the bed makes enforcement problematic.

Establishment of comprehensive restrictions against the use of mechanical harvest, and/or air-assisted, and water-assisted harvest methods for all species in Narragansett Bay and the salt ponds with provisions for certain fisheries would aid in protecting soft-shell clam stocks. Individuals fishing for razor clams have been observed either harvesting soft-shell clams with water pumps and air compressors or facilitating harvest by others through substrate disturbance. These methods facilitate

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rapid shellfish harvest and make enforcement problematic.

Alternatives to protect this fishery include, but are not limited to, establishing new shellfish management areas, establishment of area-specific fishing periods, and adoption of reduced possession limits statewide. Measures should be implemented for the Providence River while the aforementioned pollution-closure boundary at Conimicut Point is in effect.

WHELK ENDORSEMENT

Recently, DFW conducted a new comprehensive analytical assessment on whelk resources in RI (Gibson 2010). This work constitutes the first attempt to assess the status of whelk and their fishery in Rhode Island waters. As such, it addresses statutory requirements for sustainable shellfish management plans (RIGL 20-2-44) and duties of the Director to develop fishery management plans in support of commercial licensing (RIGL 20-2.1-9(5)).

Commercial Landings: A commercial fishery for whelks has existed in Rhode Island for many years; however, until September 2009 it was not regulated or the subject of a stock assessment. There are two species commonly landed in RI, the channeled (Busycotypus canaliculatus) and knobbed (Busycon carica) Whelk. According to National Marine Fisheries Service (NMFS) statistics, RI whelk landings were 85,000 pounds of meat weight in 1950 and increased over time to a peak in 1986 at 347,000 pounds. After several years of high landings, the fishery declined rapidly and from 1994 to 2003, when reported landings were less than 2,200 pounds. Since 2006, whelk landings by species have been monitored through the SAFIS reporting system, which captures landings from both state and federally permitted fishers. A sharp increase in whelk landings occurred from 2008 to 2009, with years 2006-2008 averaging 397,330 pounds annually and years 2009-2013 averaging 765,561 pounds annually (Figure 6). The average whelk landings per trip shows a decreasing trend from 2009 onward (Figure 7). Ex-vessel value of whelks from 1950 to 1976 was steady at about $1.25 per pound of meat. It then increased sharply from $1.27 to $3.24 from 1976 to 1983. From 2004 to 2008, value has fluctuated around $3.00 per pound (Gibson 2010) but has fallen to around $2.25 in 2013.

Resource Assessment: On the basis of Biomass Dynamic Model observations, it was concluded that Fmsy =0.33 is an appropriate overfishing reference point for whelk in Rhode Island and an F=0.25 would be an appropriate fishing mortality target providing a buffer between the overfishing threshold. Current F rate is at or below this level indicating that overfishing is not occurring (Gibson 2010). Biomass was estimated to be near the Bmsy reference level so an overfished condition is not likely. In addition, a Yield Per Recruit (YPR) analysis indicated that the recently the minimum size of 2.5" shell width would produce little benefit to spawning stock biomass since the fishery harvests few animals smaller and some remain immature at 2.5". An increase of 1/8th" over the next two years to a size of 2.75" shell width is estimated to increase SSB/R levels about 7% at current F and provide a pre-cautionary buffer against recruitment

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declines without reducing fishery yield much. An increase to 3.0" shell width would produce a more substantive increase in SSB/R (23%) but with an YPR loss of 15%. In light of this evidence the minimum size was increased in 2014 from 2 ¾" to 2 7/8" minimum width and an additional 1/8" increase in width to 3" minimum width will occur in 2015.

The fishery seems to have operated in a pulse fishing mode with periodic increases in abundance that attracted fishing effort. High fishing mortality rates ensued (1960's, 1980's), the stock declined, effort dissipated, and a biomass recovery followed. A minimum size limit alone cannot prevent reoccurrence of these fishing pulses. To avoid opportunistic expansions in effort, consideration will need to be given to effort limitation via license/permitting or through output controls such as catch limits and quotas (Gibson 2010).

Fishery Management and Licensing Recommendations: Whelks are managed entirely within state waters by DEM. To avoid opportunistic expansions in effort, a new endorsement directed at whelk fishing was added to the licensing system for 2012. The goal of the new endorsement is to cap and monitor effort through the use of the endorsement category and avoid future boom and bust cycles that were observed over recent years (Gibson 2010). Other management measures should be considered to control output to limit fishing mortality such as quotas, daily possession limits, closed seasons, and a minimum size based upon sexual maturity. A comprehensive whelk fishery sampling program was conducted by DFW during 2012 and the results of data analyses may be considered for future whelk fishery management plan strategies. The RIMFC Ad Hoc Whelk Committee met in November 2011 and recommended a license moratorium on new whelk endorsements for the 2013 licensing year, which was adopted and implemented based on the Industry Advisory Committee (IAC) support of the proposal described in the following section.

RI Marine Fisheries Council Advice: **Pending**

OTHER SHELLFISH ENDORSEMENTS

Other species of shellfish commercially harvested within Rhode Island waters include oysters, blue mussels, and razor clams. While these species are not routinely assessed by RI DFW and little data is available to conduct comprehensive analytical assessments, landings data and anecdotal evidence from the commercial fishing industry are useful pieces of information in identifying populations that warrant further research.

Commercial Landings: Regarding the oyster stock, landings have decreased since the late 1990's. In 2013, 315,577 wild oysters (54,900 pounds) were landed in RI. To put this number in perspective, the aquaculture industry in Rhode Island (52 farms) sold 6.4 million oysters in 2013. Therefore only 5% of the oysters from Rhode Island are from wild harvest. According to local researchers studying oyster populations within Narragansett Bay, the effects of disease, environmental conditions, poor sets of new

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recruits, and fishing pressure are all responsible for the sharp decline in abundance levels (Oviatt et Al. 1998). It is a reasonable assumption that given such high rates of natural mortality, fishing pressure can lead to local depletions of the resource. Recently dead oysters (open shells) are visual evidence of the effects of oyster disease. This occurs in both fished and unfished RI waters. Further investigation into the effects of fishing effort is certainly warranted; however, until the extent of the influence that fishing effort and poor recruitment has on abundance is ascertained DFW recommends reducing the daily possession limit accordingly. Establishment of new spawner sanctuaries and harvest moratoria are considered important components of the collaborative oyster-restoration efforts that are underway. Initiating further research and monitoring to track abundance and recruitment success is needed.

Management Program: Oysters and blue mussels are managed in state waters by the DEM with advice from the RIMFC. Additional federal regulations apply to surf clams and ocean quahaugs in federal waters. DEM uses seasons and possession limits to manage the state waters fishery. Permanent and conditional pollution closures further restrict the fishery in addition to the above management measures. The DEM, in cooperation with both federal government and non-government organizations, has been conducting oyster restoration in the salt ponds and Narragansett Bay.

In 2006, the Natural Resources Conservation Service (NRCS) provided funding for a statewide oyster restoration project to help increase the spawning and recruitment levels sufficient to reestablish a self-sustaining oyster population. DEM is overseeing and authorizing the placement of the stocked oysters into the state's waters. Currently, there are six established shellfish spawner sanctuaries in state waters with habitat suitable for placement of the oysters. They are in designated portions of Winnapaug and Ninigret Ponds, Potters Pond, Jenny's Creek, and Bissell cove. The Nature Conservancy (TNC) is also assisting with restoration efforts.

Licensing Options and Recommendations: DFW recommends no changes for the licensing program for shellfish that fall under the non-quahaug endorsement category excluding soft-shell clams and whelks until better data is available on their status. It is also recommended that new commercial licenses continue to have basic harvest levels equal to current licensees for this endorsement.

SHELLFISH HARVESTING METHODS CLARIFICATION

Current harvesting regulations were developed and implemented to facilitate harvest of specific shellfish species of economic interest to the commercially fishing community. Permissible harvest methods were implemented with the intent of minimizing habitat impacts and protecting juvenile stocks while allowing a reasonable harvest. As demand has developed for alternative species of mollusks, crustaceans, and finfish; requirements relating to fishing methods have remained stagnant.

Species-specific regulatory language has resulted in commercial fishing activities

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targeting unregulated (or under-regulated) species. Industry has interpreted existing regulatory language to mean that harvest of unregulated species is permissible by fishing methods considered too intrusive or unsuitable by RIDFW. Examples include: dredging for whelk, horseshoe crabs (and other unregulated species) and the use of mechanical harvest methods (including air-assisted and water-assisted methods) in pursuit of razor clams and mantis shrimp in direct proximity to regulated species and inside established pollution closures. The species-specific regulations tie the hands of law enforcement. The insufficiencies also make proper resource management and habitat protection problematic.

Regulations need to be crafted that address omissions and insufficiencies in the regulations that do not prevent these activities (and associated impacts) while facilitating intended fishing opportunities.

LITERATURE CITED

Erkan, D.E. and M.R. Gibson. 2006. 2005 Shellfish Survey of Potter Pond South Kingstown, Rhode Island. RI Division of Fish and Wildlife.

Ganz A., Lazar N., and A. Valliere. 1999. Narragansett Bay Quahaug Management Plan. RI Division of Fish and Wildlife. Report to the Narragansett Bay Project and RI Marine Fisheries Council.

Gibson, M.R. 1999. Assessment of quahaugs (*Mercenaria mercenaria*) in Narragansett Bay: technical analyses in support of a bay wide quahaug management plan. RI Division of Fish and Wildlife. Res. Ref. Doc. 99/2.

Gibson, M.R. 2010. Stock Assessment of Whelk in Rhode Island and Recommendations for Research and Management. In progress

Gibson, M.R. 2012. Stock Assessment of Soft-Shell Clams (Mya arenaria) in Rhode Island Using a Dynamic Depletion Model Applied to SAFIS Data. Draft Report - RI Division of Fish and Wildlife.

Murphy, B.R. 2007. Estimation of Catch per Unit Effort for the Commercial Soft-shell Clam (*Mya arenaria*) Fishery in Rhode Island. RI Division of Fish and Wildlife.

Oviatt, C, Wolff, N, VanKeuren, D, and E. Nicosia. 1998. Oysters (*Crassostrea virginica)* as indicators of a climate warming trend in Northeast waters. CR822051-010 Final report. Funding agency: Environmental Protection Agency.

Restrepo, V.R. 2001. Dynamic depletion models. Pages 345-356, In: J. G. Cano and V.R. Restrepo, eds. Report on the FAO/DANIDA/CFRAMP WECAFC regional

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workshops on the assessment of spiny lobster *Panulirus argus*. Belize City, Belize April 21- May 2, 1997 and Merida, Yucatan Mexico June 1-12, 1998. FAO Fish. Rep. 619. Part III: Stock Assessment Methods.

Sosa-Cordero, E. 2003. Trends and dynamics of the spiny lobster, *Panulirus argus*, resource in Banco Chinchorro, Mexico. Bull. Mar. Sci. 73: 203-217.

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TABLES AND FIGURES

Table 1. RI commercial quahaug landings (A= numbers and B= lbs) for 2013 by shellfish tagging area (broad areas) and market category.

A

Shellfish Tagging Areas	Individual Quahogs Landed by Market Size				Total	% of
	Littleneck	Top Neck	Cherry	Chowder	*(#)*	Total
Unknown	24,281	10,639	891	8,482	*44,293*	0.1%
RI 1A - Conditional Area A	6,205,888	2,260,822	92,451	1,182,676	*9,741,837*	28.3%
RI 1B - Conditional Area B	5,937,783	1,982,959	176,569	596,927	*8,694,239*	25.3%
RI 1C - Conditional Area C	8,257	3,207	1,015	2,683	*15,162*	0.0%
RI 2 - Greenwich Bay	1,674,587	386,948	24,577	47,569	*2,133,680*	6.2%
RI 3A,C,F,H - West Passage Management Areas	103,559	38,096	14,772	5,235	*161,662*	0.5%
RI 3W - West Passage	4,977,544	1,723,105	417,133	687,156	*7,804,937*	22.7%
RI 4A,B - East Passage	2,905,519	1,314,105	65,436	769,877	*5,054,936*	14.7%
RI 5A,K - Mount Hope Bay	37,153	20,710	0	15,016	*72,879*	0.2%
RI 5B - Sakonnet River	58,231	34,835	0	44,570	*137,636*	0.4%
RI 6B,N,P,Q,W - Coastal Ponds & Block Island	426,107	52,182	5,881	23,372	*507,542*	1.5%
Grand Total	**21,932,802**	**7,775,426**	**792,842**	**3,360,191**	**34,368,803**	-

B

Shellfish Tagging Areas	Pounds (lbs) Landed by Market Size				Total	% of
	Littleneck	Top Neck	Cherry	Chowder	*(lbs)*	Total
Unknown	3,469	1,850	198	3,393	*8,910*	0.1%
RI 1A - Conditional Area A	886,555	393,186	20,545	473,070	*1,773,357*	29.2%
RI 1B - Conditional Area B	848,255	344,862	39,238	238,771	*1,471,126*	24.2%
RI 1C - Conditional Area C	1,180	558	226	1,073		
RI 2 - Greenwich Bay	239,227	67,295	5,461	19,028	*331,011*	5.4%
RI 3A,C,F,H - West Passage Management Areas	14,794	6,625	3,283	2,094	*26,796*	0.4%
RI 3W - West Passage	711,078	299,670	92,696	274,862	*1,378,306*	22.7%
RI 4A,B - East Passage	415,074	228,540	14,541	307,951	*966,106*	15.9%
RI 5A,K - Mount Hope Bay	5,308	3,602	0	6,007	*14,916*	0.2%
RI 5B - Sakonnet River	8,319	6,058	0	17,828	*32,205*	0.5%

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RI 6B,N,P,Q,W - Coastal Ponds & Block Island	60,872	9,075	1,307	9,349	*80,603*	1.3%
Grand Total	**3,194,130**	**1,361,323**	**177,494**	**1,353,425**	**6,083,336**	-

Table 2. RI commercial soft-shell clam landings (lbs) for 2008-2012 by shellfish tagging area.

Shellfish Tagging Areas	2008	2009	2010	2011	2012	2013	% Δ '10-'13
Unknown	8,820	46,169	7,922	183	1,134	410	-94.8%
RI 1A - Conditional Area A	519,762	351,635	138,754	66,576	2,371	999	-99.3%
RI 1B,C - Conditional Area B & C	-	-	498,901	46,476	192	92	-100.0%
RI 2 - Greenwich Bay	5,704	4,182	70	358	286	0	-100.0%
RI 3 - West Passage	151,825	72,660	36,227	16,745	10,377	14,453	-60.1%
RI 4 - East Passage	4,856	5,636	2,692	19,400	377	336	-87.5%
RI 5 - Sakonnet River & Mount Hope	860	1,930	427	394	97	157	-63.2%
RI 6 - Coastal Ponds	22,333	12,421	13,602	33,619	27,053	29,334	115.7%
Grand Total	**714,160**	**494,633**	**698,595**	**183,751**	**41,887**	**45,781**	**-93.4%**

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Figure 1. Shell weight (metric tons) of quahaugs commercially landed in Rhode Island from 1946 – 2013.

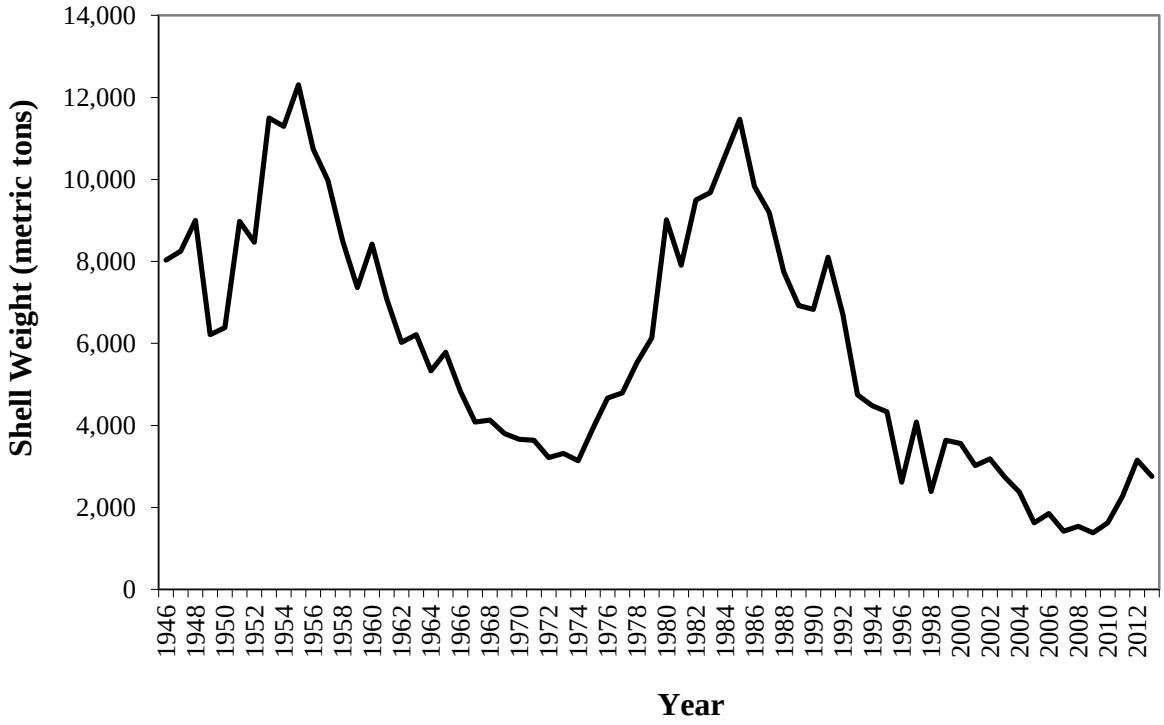


Figure 2. RI commercial quahaug landings in metric tons of shell weight and catch per unit effort (CPUE) from 2006-2013. CPUE was calculated as metric tons landed per year divided by the total number of SAFIS trips.

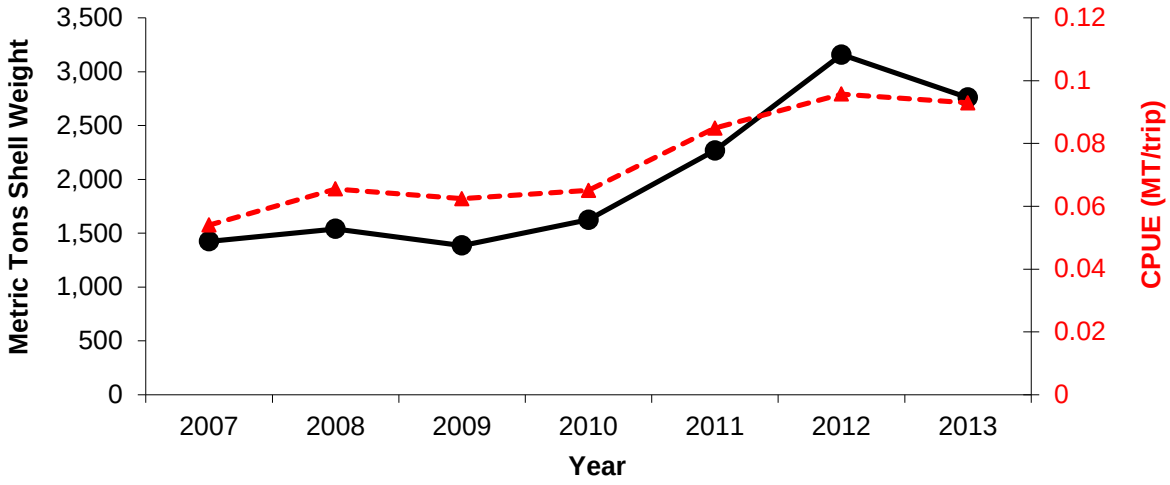


Figure 3. Recent sampling locations and survey strata in Narragansett Bay as measured by RI DEM Fish and Wildlife's hydraulic dredge survey (2012-2013)

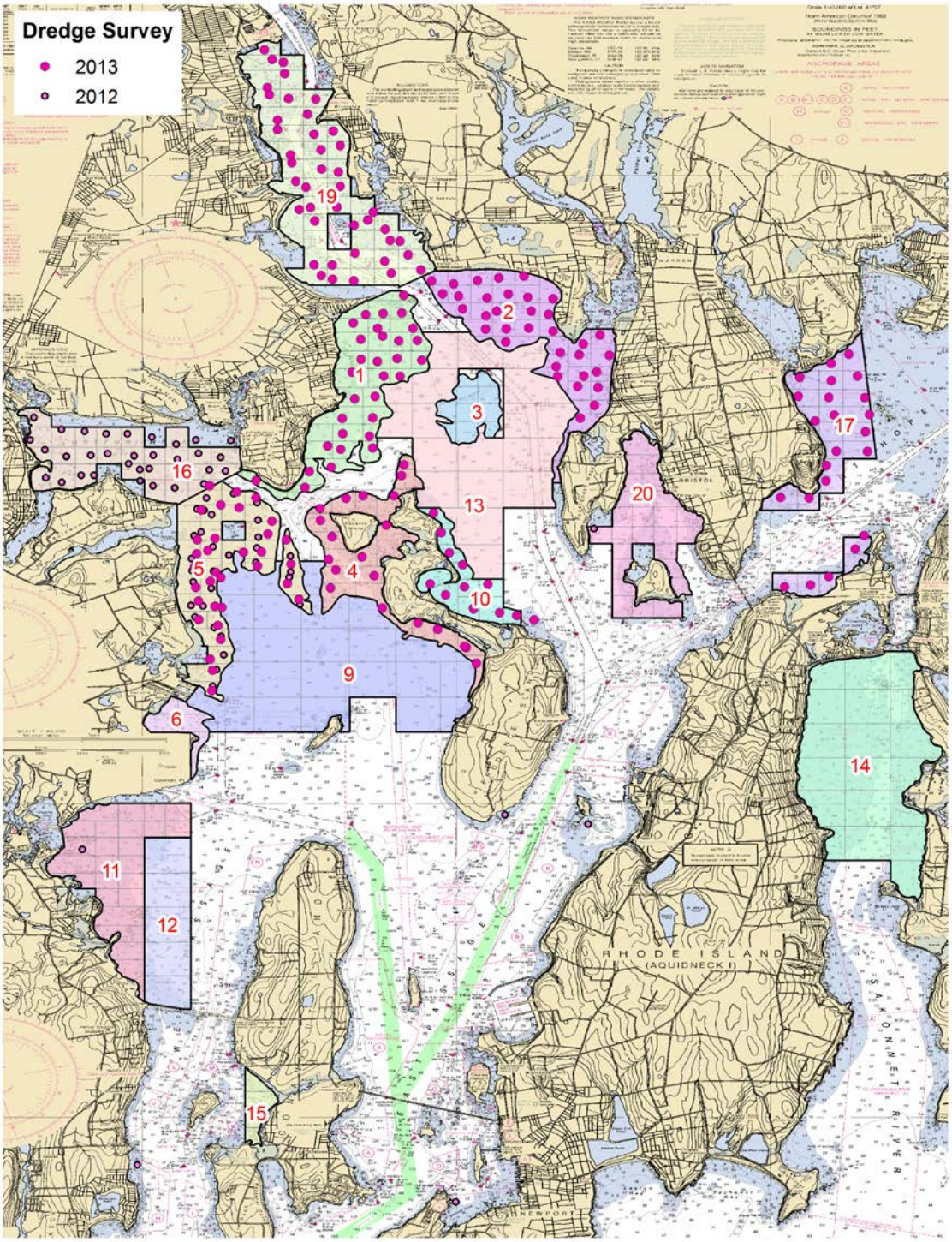


Figure 4. RI commercial soft-shell clam landings (shell weight, metric tons) from 1945-2013.

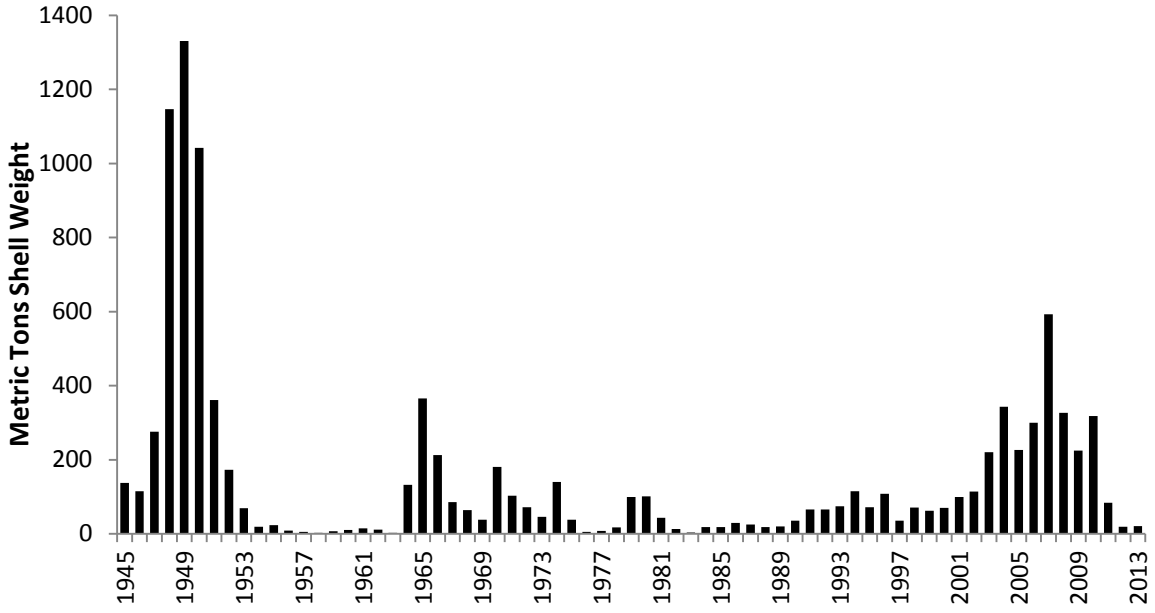


Figure 5. RI commercial soft-shell clam landings and catch per unit effort (CPUE) from 2006-2013. CPUE was calculated as pounds landed divided by the total number of SAFIS trip per year.

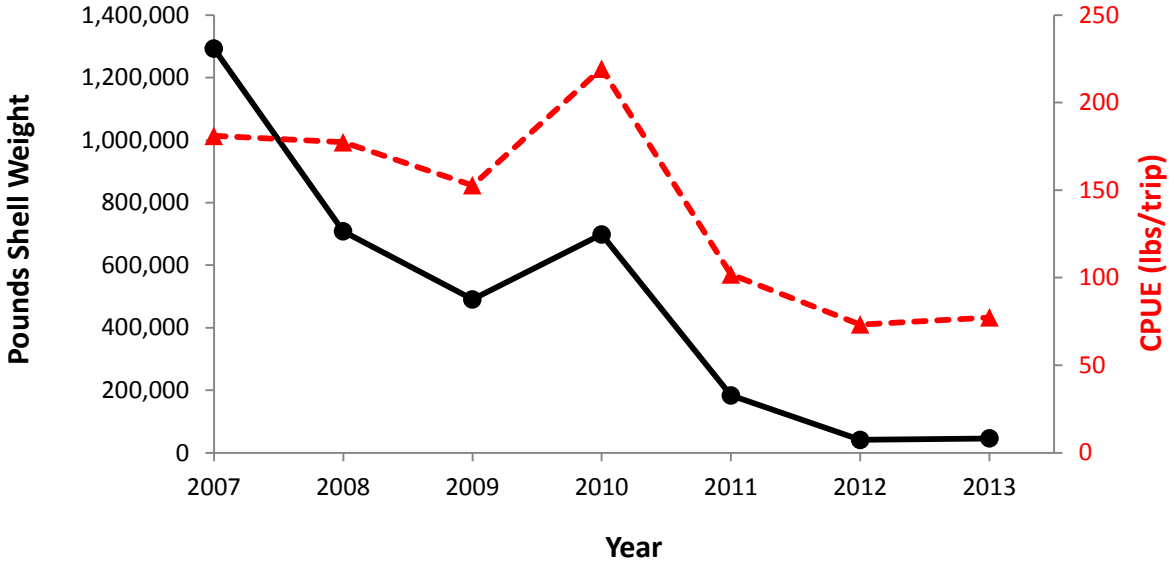


Figure 6. RI commercial whelk landings (species combined) for 2006-2013.

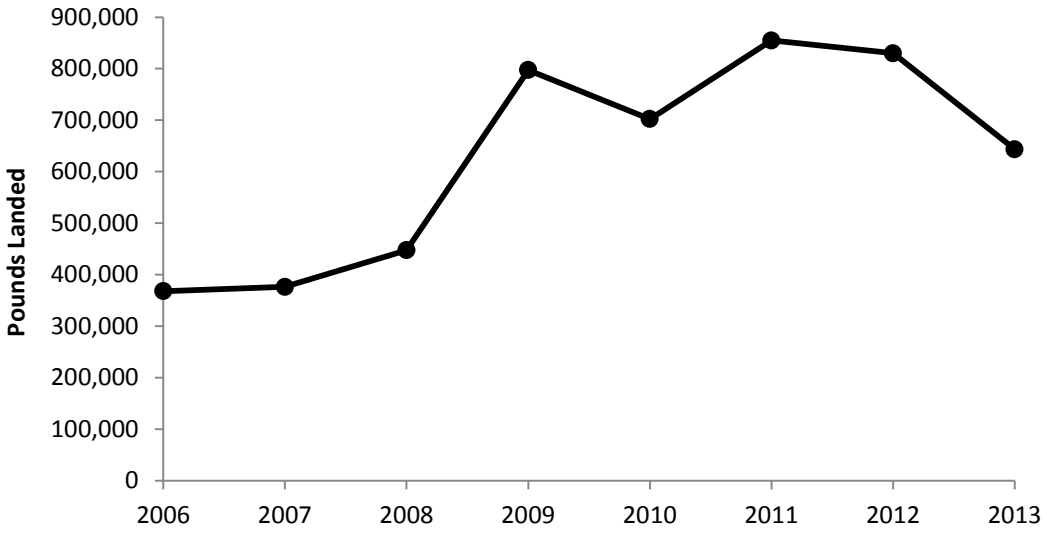
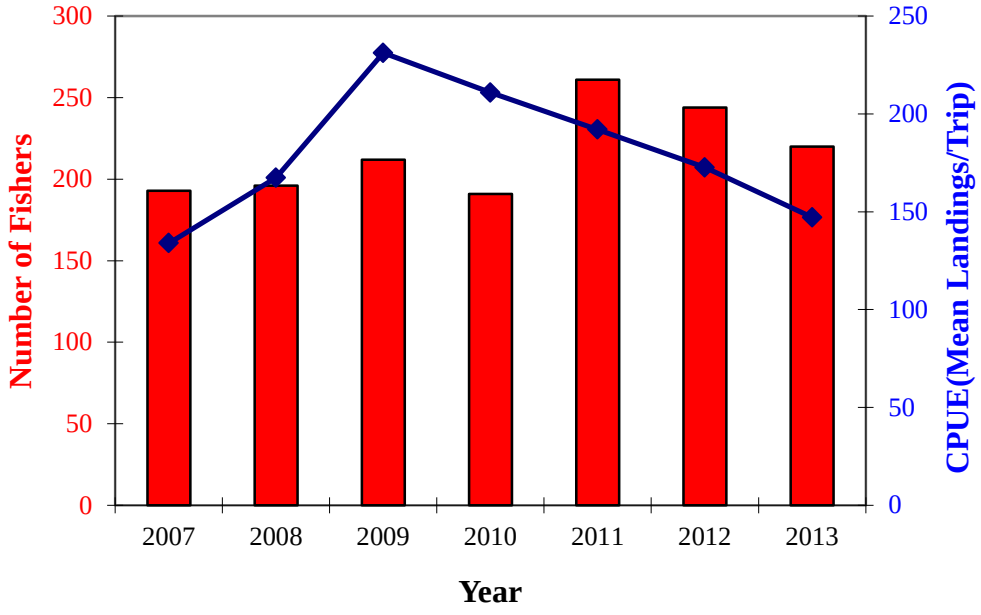


Figure 7. Number of reported fishers active in the fishery and mean landings per fisher per day recorded in SAFIS in the RI commercial whelk fishery from 2007-2013.



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 **Date** 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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Janet L. Coit, Director
Department of Environmental Management

Notice Given:	08/29/2014
Public Hearing:	09/30/2014
Filing date:	XX/XX/2014
Effective date:	XX/XX/2014

ERLID# ~~7038~~

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