Atlantic States Marine Fisheries Commission

PUBLIC INFORMATION DOCUMENT

For Amendment 2 to the Interstate Fishery Management Plan For

ATLANTIC MENHADEN

February 2012

ASMFC Vision Statement:
Healthy, self-sustaining populations for all Atlantic Coast fish species or successful restoration well in progress by the year 2015

The Atlantic States Marine Fisheries Commission seeks your input on the initiation of Amendment 2 to the Atlantic Menhaden Fishery Management Plan

The public is encouraged to submit comments regarding this document during the public comment period. Comments must be received by **5:00 PM (EST) on April 20, 2012.** Regardless of when they were sent, comments received after that time will not be included in the official record. The Atlantic Menhaden Management Board will consider public comment on this document when developing the first draft of Amendment 2.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction, if applicable.
2. Refer comments to your state's members on the Atlantic Menhaden Board or Atlantic Menhaden Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

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Fax: (703) 842-0741
mwaine@asmfc.org (subject line: Menhaden PID)

If you have any questions please call Mike Waine at (703) 842-0740.

YOUR COMMENTS ARE INVITED

The Atlantic States Marine Fisheries Commission (Commission) is developing an amendment to revise the interstate fishery management plan (FMP) for Atlantic menhaden. The Commission, through the coastal states of Maine through Florida, is responsible for managing Atlantic menhaden.

This is your opportunity to inform the Commission about changes observed in the fisheries; actions you feel should or should not be taken in terms of management, regulation, enforcement, and research; and any other concerns you have about the resources or the fisheries, as well as the reasons for your concerns.

WHY IS THE ASMFC PROPOSING THIS ACTION?

The 2010 Atlantic menhaden benchmark stock assessment Peer Review Panel noted that menhaden population abundance had declined steadily and recruitment had been low since the last peak observed in the early 1980s. Fishing at the fishing mortality (F) threshold reference point in the terminal year (2008) has resulted in approximately 8% of the maximum spawning potential (MSP). Therefore, the Panel recommended alternative reference points be considered that provide greater protection for spawning stock biomass (SSB) or population fecundity relative to the unfished level. In November 2011, the Atlantic Menhaden Management Board responded to that recommendation and adopted new F reference points. The new reference points are more conservative than the previous to account for the following: (1) while menhaden are not overfished the number of fish in the population has been declining, (2) while menhaden are important for many fisheries they also provide important ecological services, (3) strong recruitment classes may be dependent on favorable environmental conditions, and (4) recent science suggest conserving a larger percentage of the spawning stock. The new F threshold is $F_{15\%MSP}$ = 1.32 and the new F target is $F_{30\%MSP}$ = 0.62. The 2010 assessment estimated F for the terminal year (2008) to be 2.28, indicating that F had exceeded the threshold resulting in overfishing. Addendum V states that when overfishing is occurring the Board will take steps to reduce F to the target level. In order to reduce overfishing to the target, the Board needs to consider changes in the management tools used to regulate the fishery. This document proposes a suite of management tools that could reduce F.

WHAT IS THE PROCESS FOR DEVELOPING AN AMENDMENT?

The publication of this document and announcement of the Commission's intent to amend the existing FMP for Atlantic menhaden is the first step of the formal amendment process. Following the initial phase of information gathering and public comment, the Commission will evaluate potential management alternatives and the impacts of those alternatives. The Commission will then develop Draft Amendment 2, incorporating the identified management options, for public review. Following that review and public comment, the Commission will specify the management measures to be included in Amendment 2, as well as a timeline for implementation.

In addition to issues identified in this Public Information Document (PID), the Draft Amendment may include issues identified during public comment period of the PID.

The timeline for completion of Amendment 2 is as follows:

	Feb 2012	Mar 2012	Apr 2012	May 2012	June 2012	July 2012	Aug 2012	Sept 2012	Oct 2012
Approval of Draft PID by Board	**X**								
Public review and comment on PID Current Step		**X**	**X**						
Board review of public comment; Board direction on what to include in Draft Amendment 2				**X**					
Preparation of Draft Amendment 2					**X**	**X**			
Review and approval of Draft Amendment 2 by Board							**X**		
Public review and comment on Draft Amendment 2								**X**	
Board review of public comment on Draft Amendment 2									**X**
Review and approval of the final Amendment 2 by the Board, Policy Board and Commission									**X**

WHAT IS THE PURPOSE OF THIS DOCUMENT?

The purpose of this document is to inform the public of the Commission's intent to gather information concerning Atlantic menhaden and to provide an opportunity for the public to identify major issues and alternatives relative to the management of this species. Input received at the start of the amendment development process can have a major influence in the final outcome of the amendment. This document is intended to solicit observations and suggestions from fishermen, the public, and other interested parties, as well as any supporting documentation and additional data sources.

To facilitate public input, this document provides a broad overview of the issues already identified for consideration in the amendment; background information on the Atlantic menhaden population, fisheries, and management; and a series of questions for the public to consider about the management of the species. In general, the primary question on which the Commission is seeking public comment is: **"How would you like the Atlantic menhaden fisheries to look in the future?"**

WHAT GENERAL SSUES WILL BE ADDRESSED?

The primary issues considered in the PID are:

- Timeline to Achieve the F Target
- Timely and Comprehensive Catch Reporting
- Recreational Fishery Management Tools
- Commercial Fishery Management Tools

ISSUE 1: Timeline to Achieve the Fishing Mortality Target

Background: The new F reference points adopted by the Board are intended to be interim reference points while the Commission's Multispecies Technical Committee develops ecological-based reference points (ERP). The ERPs will take some time to develop due to the complexity of modeling predator-prey relationship in marine species that rely on menhaden for forage (e.g., striped bass, bluefish, weakfish). In either case (biological or ecological reference points) the intent is to manage Atlantic menhaden at sustainable levels to support fisheries and meet predator demands through sufficient SSB to prevent stock depletion and recruitment failure.

The current status of the Atlantic menhaden stock is not overfished, but overfishing is occurring. Through Amendment 2, the Board will take immediately actions to end overfishing. However, because the reductions in F are more substantial to achieve the F target, the Board is considering a one, three, five and ten year schedule to reduce F to the target level. Depending on the schedule for reducing F, a time stepped approach may be used in which F would be reduced in smaller increments until the target is reached. If the target F is to be achieved on a shorter time frame, annual reductions in landings may be more substantial than if the F was achieved over a longer time period with a time stepped F.

Statement of the Problem: Given that the current F (F_{2008} = 2.28) exceeds the F threshold ($F_{15\%MSP}$ = 1.32), and target ($F_{30\%MSP}$ = 0.62), the Board must take steps to reduce F to the target level.

Achieving the F threshold and target will require the implementation of management measures that lower landing levels compared to recent years. The 2012 stock assessment update, scheduled to be available in August, will provide a more current estimate of F. The intent is to simultaneously update the stock assessment while developing Draft Amendment 2 to provide the most accurate estimation of the harvest levels that are recommended to achieve the new F threshold and target.

The schedule for the stock assessment as it relates to Amendment 2 is as follows,
Feb 2012: Board approval of Draft PID
Mar 2012: Public review and comment on PID
Apr 2012: Compile data for stock assessment update
May 2012: Board review of public comment; Board direction on Draft Amendment 2
May 2012: Stock assessment modeling
June 2012: Preparation of Draft Amendment 2
June 2012: Assessment Workshop
July 2012: Finalize stock assessment update and Draft Amendment 2
Aug 2012: Review and approval of Draft Amendment 2 and 2012 stock assessment update

The constant landings scenarios explored below are based on the current overfishing status and are subject to change when an updated F is estimated through the 2012 stock assessment update. The projections illustrate how the F reference points may be achieved if the board chooses to adopt a constant landings approach.

For example, Table 1 explores different quota harvest levels and their respective probabilities of achieving the F threshold over a series of years given constant landing scenarios. Intuitively, lower landing levels have a higher probability of achieving the threshold, whereas higher landing levels have a lower probability of achieving the threshold. These projections assume constant landings, meaning if a specific landing level is maintained from one year to the next the probability of achieving the threshold increases. These principles also apply to the probabilities of achieving the target over a given time frame as detailed in Table 2.

The Board is considering landing levels that have a 0.50 to 0.75 probability (equates to a 50 – 75% probability) of achieving the threshold and target, because the higher the probability of achieving the threshold, the lower the risk of overfishing. Other fisheries have used similar levels of risk when attempting to reduce F to its respective reference point.

Table 1. The probability of the fishing mortality rate (F) being less than the THRESHOLD over time for given constant

Landings (1000s mt)	2013	2014	2015	2016	2017
75	0.56	0.89	1.00	1.00	1.00
100	0.40	0.74	0.93	0.99	1.00
125	0.28	0.55	0.78	0.91	0.96
150	0.17	0.37	0.56	0.73	0.84
175	0.10	0.22	0.35	0.47	0.56
200	0.05	0.11	0.17	0.22	0.28
225	0.02	0.05	0.07	0.08	0.09

Table 2. The probability of the fishing mortality rate (F) being less than the TARGET over time for given constant landing scenarios.

Landings (1000s mt)	2013	2014	2015	2016	2017
75	0.21	0.62	0.91	0.99	1.00
100	0.09	0.35	0.66	0.88	0.96
125	0.02	0.15	0.38	0.59	0.76
150	0.01	0.05	0.14	0.27	0.40
175	0.00	0.01	0.04	0.07	0.11
200	0.00	0.00	0.00	0.01	0.02
225	0.00	0.00	0.00	0.00	0.00

Public Comment Questions: Should the target F be achieved over one, three, five, ten years, or some other time frame? Does a 0.50 to 0.75 probability of achieving the threshold/target provide an appropriate level of risk? If the F is reduced over a number of years, how much of a reduction should occur each year, or should the reduction be constant across all years?

ISSUE 2: Timely and Comprehensive Catch Reporting

Background: The current catch reporting requirements for the Atlantic menhaden fisheries do not provide timely or complete data for use by managers and scientists, particularly the bait fishery. The current reporting program varies by fishery (bait and reduction), state, and gear type (Appendix 1, table 2). Reporting in the recreational fishery is done through the Marine Recreational Information Program (MRIP), and will only apply to fish that are caught and not menhaden that are purchased for bait. Additional monitoring requirements and timelier reporting would allow managers and fishermen to monitor the landings throughout the season, and evaluate the effectiveness of selected fishery management measures.

The current reporting structure for the Purse-Seine Reduction Fishery is as follows:
• Landings - Daily vessel unloads (in thousands of standard fish) are emailed daily to the NMFS.

• Age Compositions – A NMFS port agent samples purse-seine catches at dockside in Reedville, VA, throughout the fishing season (May through December).
• Removals by Area - Areal removals of Atlantic menhaden by the purse-seine reduction fleet are estimated using the Captains Daily Fishing Reports (CDFRs). CDFRs are deck logbooks maintained by Virginia reduction purse-seine vessels. Fleet compliance is 100% (about 10 vessels in 2011). Vessel captains complete CDFRs and itemize the number of daily purse-seine sets. Among other things, data recorded for each set include time and location of set, distance from shore, and the 'at-sea' estimated catch

CDFRs from the Reedville menhaden fleet are used to estimate in-season removals from Chesapeake Bay (Chesapeake Bay Cap). Total removals by area are calculated at the end of the fishing season. At-sea catches from the CDFRs are summed by vessel, and compared to total vessel unloads from company catch records. Individual at-sea sets are then multiplied by an adjustment factor (company records/ at-sea estimates). Adjusted catches by set are converted to metric tons, and accumulated by fishing area. Catch totals are reported by ocean fishing areas (New Jersey, Delaware, and Maryland in the EEZ, Virginia and North Carolina), while catches inside and outside Chesapeake Bay are delineated by the Chesapeake Bay Bridge Tunnel.

Statement of the Problem: The current reporting structure and inconsistencies between states have led to uncertainties in the landings history for Atlantic menhaden.

There are many electronic based reporting options that could be used to significantly improve reporting with only modest burden of the fishermen and/or dealers.

Public Comment Questions: How should the landings reporting system be improved to provide more timely and comprehensive catch information? Should both dealers and fishermen be required to report? Should fishermen be required to report data to help support stock assessments (area fished, effort, etc.)? What electronic reporting options should be considered: Vessel Monitoring Systems (VMS), Interactive Voice Reporting (IVR), web-based reporting, or reporting through the Standard Atlantic Fisheries Information System (SAFIS)? Should all state dealers be required to report weekly to be consistent with federal reporting requirements? How should the reported data elements be standardized (e.g., landings, gears used, area fished)?

ISSUE 3: Recreational Fisheries Management Tools

Background: Menhaden are important bait in many recreational fisheries; some recreational fishermen employ cast nets to capture menhaden or snag them with hook and line for use as bait, both dead and live. Recreational harvest is not well captured by MRIP because there is not a known identified direct harvest for menhaden. MRIP intercepts typically capture the landed fish from recreational trips as fishermen come to the dock or on the beach. Since menhaden caught by recreational fishermen are used as bait during their trip, they will not be a part of the harvest that is typically seen by the

surveyor completing the intercept.
Recreational harvest has varied over time with a high of 672.25 mt in 1992 and a low of zero metric tons in 2009. The average harvest since 1981 is 126 mt. Landings have averaged 95 mt over the last five years. (Figure 2).

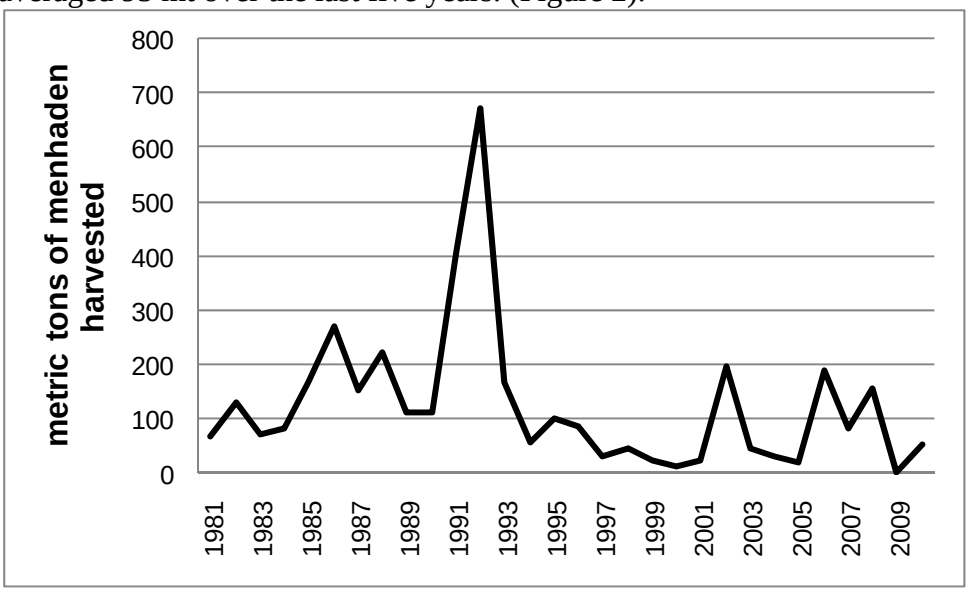


Figure 2. Atlantic Menhaden Recreational Harvest (A1+B1) from 1981-2010. Source: "Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division**.** [June 30, 2011]

Statement of the Problem: Currently, no recreational fishery management measures have been implemented for Atlantic menhaden. Since a reduction in F is necessary to achieve the threshold and target, there is a need to explore other management options that may be used to regulate the recreational fishery. The amount of harvest reduction will be based on the results of the 2012 stock assessment update, which will revise the current F level, as was explained under issue 1.

Any combination of the management options below can be considered. It is recommended that alternative data collection procedures are explored under the MRIP since the current data collection program does not effectively capture recreational menhaden harvest.

Option 1: Status Quo:
Currently, no recreational fisheries management measures have been implemented.

Option 2: Size Limits
Under this option, minimum or maximum size limits would be considered to constrain the fishery to an F-based target or a quota.

Option 3: Bag Limits
Under this option, possession limits would be considered to constrain the fishery to an F-based target or a quota

Option 4: Season
Under this option, season closures would be considered to constrain the fishery to an F-based target or a quota

Option 5: Area Closures
Under this option, fishing would prohibited in specific areas. Area closures have the potential for creating protection for immature fish, spawning stock and the protection of ecosystem services.

Option 6: Gear Restrictions
Under this option, gear modifications wouldbe used to restrict the amount of catch (e.g., mesh size, net size).

Public Comment Questions: Should harvest be restrictions be implemented in the recreational fishery?

ISSUE 4: Commercial Fisheries Management Tools

Background: Atlantic menhaden have supported one of the largest commercial fisheries since colonial times. In 2004, there were only two reduction plants left operating on the Atlantic coast, Omega Protein in Reedville, Virginia and Beaufort Fisheries in Beaufort, North Carolina (Cheuvront 2004). Since February 2005, Omega Protein's plant in Reedville, Virginia is the only active menhaden reduction factory on the Atlantic coast. In addition to traditional menhaden use in the agricultural (both aquatic and land) and soluble industries, the oil has been refined to produce omega-3 fish oil products for human consumption, including food additives and capsules in recent years.

The 2010 Atlantic menhaden harvest for reduction purposes was 183,085 mt. This is up 27.3% from the 2009 landings of 143,800 mt, and up 19.9% from the previous 5-year (2005-2009) average of 152,747 mt (Figure 1). The average reduction harvest for the last ten years was 170,400 mt.

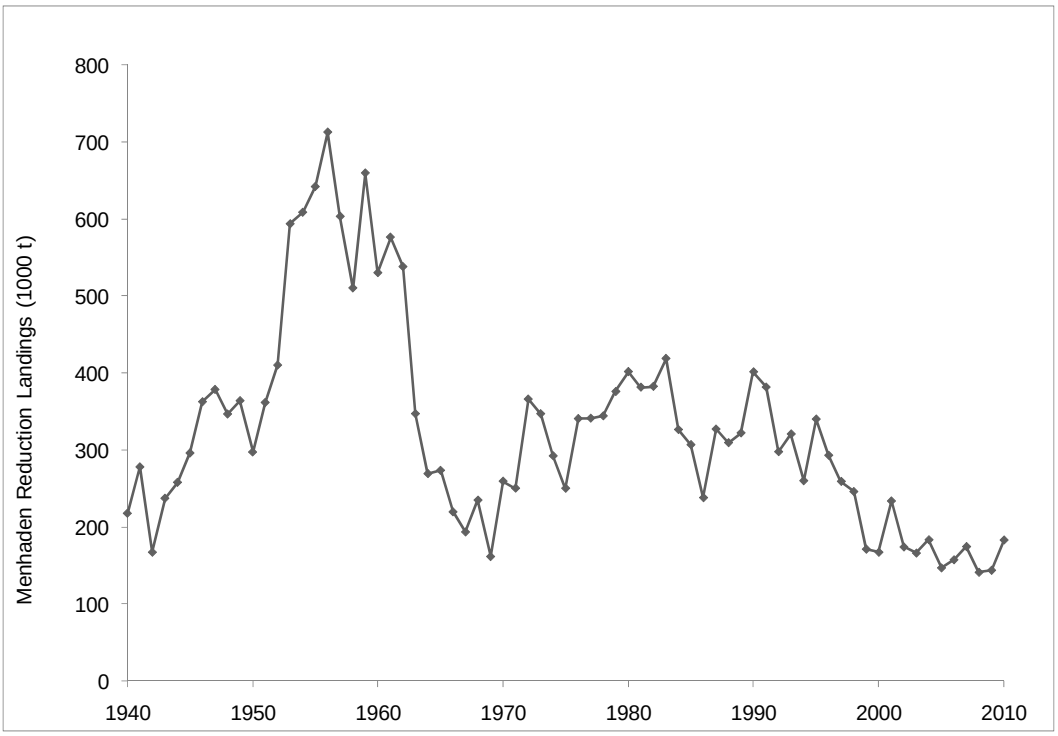


Figure 1. Landings from the reduction purse seine fishery (1940–2010) for Atlantic menhaden.

The harvest of menhaden as bait for a variety of commercial and recreational uses is associated with a number of directed fisheries using purse seines, pound and gill nets, and bycatch in fisheries targeting other species (using haul seines, pound nets and trawls). The dead bait is used in pots and for commercial hook and line fisheries, while live baits are important for recreational "slow trolling" in the hook and line fishery.

The bait fishery taking place in southern New England, namely in the area south of Cape Cod, Massachusetts, is comprised primarily of two purse seine vessels in the 90 foot range. These operations are based out of Fall River, Massachsuetts and prosecute the majority of their fishery while in southern New England in Narragansett Bay, Rhode Island. The fishery takes place from late spring into the summer, with occasional harvest taking place in early fall if southward migrating fish come in to Narragansett Bay in significant numbers. In recent years, with a few notable exceptions (i.e. 2008), the adult menhaden populations entering Narragansett Bay have been small, and the vessels have moved their operations south, mainly to New Jersey, during these years. Recently there have been additional purse seine operations that have attempted to prosecute fisheries in this same area. There are also a few small-scale cast-net and floating fish-trap operations but in total these operations have not contributed significantly to the New England bait harvest. The majority of the menhaden landed in southern New England is transported overland to ports in Maine and Massachusetts for use as bait in the lobster fishery.

North of Cape Cod, the largest volume of menhaden is landed in Gloucester, Massachusetts. However, in recent years, all of these fish have been caught off the coast of New Jersey via purse seine, transferred at-sea to a mid-water trawl vessel, and

brought to Gloucester. In some years, small purse seiners and gillnetters will harvest menhaden from local waters, notably from Boston Harbor and Salem Sound, yet these fish typically comprise less than three percent of the total New England menhaden landings. In Maine, there are two to three herring seiners who switch to harvesting menhaden for bait on an opportunistic basis even if outside of the Gulf of Maine (Kaelin, personal communication).

Smith and O'Bier (2011) report that the bait fishery in the Chesapeake Bay is a major contributor to the landings of menhaden bait. The number of vessels reduced from eight during the 1990s to four in 2009 due to state implemented management restrictions. Their sizes and original purposes varied. Four of the five vessels fishing the past few years are less than 100 feet in length. The fishing season extends from early May to late November.

Historically, the in-state bait fishery in North Carolina has operated on an even smaller scale than in New England. Very small operators, some associated with marinas, use cast nets in the late afternoon or early morning during the summer months. In addition to harvesting bait for crab fishing, one type of operation keeps the fish alive in holding tanks or nets for "slow trolling" for king mackerel, or bottom fishing for cobia. The operators anchor near the pathway of early morning recreational anglers in boats ranging from 17 to 30 feet in length as they leave their moorings to fish in the bays or inshore outside of inlets. Nearshore head and charter boats also purchase menhaden. The fish are sold by the dozen and are kept alive in live bait wells in the sportfishing boats. In the past, licensing on the part of commercial fishermen for bait required a special permit, but that has been changed. Licenses which allow the use of commercial gear for purposes other than purse seining can now be used for bait fishing.

Total reported annual landings of Atlantic menhaden for bait on the Atlantic coast averages about 36,000 mt for the period 1985-2010 (Appendix, Table 3). The reported bait landings in 2010 increased from the previous year to 44,000 mt. The Chesapeake Bay region has been the largest harvester of menhaden bait since the 90s, with the Mid-Atlantic only exceeding the bay harvest in 1992, 1997 and 2010. In 2010, the Chesapeake Bay harvest declined to 17,880 mt. The Mid-Atlantic bait harvest increased in 1992 and then decreased in 2003–2006. The Mid-Atlantic harvest increased to the record value of 23,065 metric tons in 2010. The New England bait harvest was less than 1,000 mt from the mid-90s to 2004. In 2005 the harvest began to increase and reached approximately 8,000 mt in 2007 and has since declined to 2,320 mt in 2010. The South Atlantic harvest has been less than 1,000 mt for the last nine years.

Statement of the Problem: Currently, the only commercial fishery management measure is a harvest cap on the Chesapeake Bay reduction fishery. Considering a reduction in F is necessary to achieve the threshold and target, there is a need to explore other management options that may be used to regulate the commercial fishery. The amount of harvest reduction will be based on the results of the 2012 stock assessment update, which will revise the current F level, as was explained under issue 1.

Any combination of the management options below can be considered. It is recommended that more timely and comprehensive data reporting be implemented with all of the following options.

Option 1: Status Quo
Under the current management program, the only harvest restrictions are listed in *Section 3.1* of Addendum IV to Amendment 1. *Section 3.1* sets an annual total allowable harvest for Chesapeake Bay reduction fishery of no more than 109,020 mt (the average landings from 2001-2005). This cap, which began in 2006, is in place through 2013. Over-harvest in any given year will be deducted from the next year's allowable harvest. In years when annual menhaden harvest in the Chesapeake Bay for reduction purposes is below the 109,020 mt cap, the underage amount shall be credited to the following year's allowable harvest. Under no circumstances can allowable harvest in any given year from 2011 through 2013 exceed 122,740 mt. Such credit can only be applied to the following calendar year's harvest cap and cannot be reserved for future years or spread over multiple years. Further, if no more than the underage amount in one year is credited to the next year's allowable harvest, the annual average harvest for 2011 through 2013 cannot exceed 109,020 mt.

Option 2: Trip Limits
Under this option, catch would be restricted using a maximum poundage allowance per trip or day. The Board would need to consider:

- If trip limits would be implemented by individual trip or by day because the possibility of multiple trips within a day exists or multi-day trips
- Implementation by fishery type
- Implementation of trip limits by gear type
- If trip limits would create discard mortality
- Designation of triggers based on harvest levels
- The spatial and temporal distribution of the stock to implement the most efficient trip limit

A benefit of trip limits, when used in conjunction with quotas, is that they provide some measure of controlling the catch rate. They also allow for the allocation of specific areas of the fishery based on performance. A negative aspect of trip limits is that they can create discard mortality with most fishing gears. They can be difficult to enforce and monitor due to the magnitude of the catch in the menhaden fishery.

Option 3: Gear Restrictions
Under this option, gear modifications would used to restrict the amount of catch (e.g., mesh size, seine size). The Board would need to consider:

- Gear types used that would be suitable to modify (e.g., gill nets, purse seines)
- Gear selectivity studies that justify the use of gear modifications; for example, mesh size can be implemented to minimize the harvest of immature fish.
- Realized costs by fishery to modify current gears
- Area or season closure by gear
- Designation of allowable gears, could be for directed or bycatch purpose

A benefit of gear restrictions is that they are enforceable measures by gear type. Significant amount of research would need to be done before gear restrictions could be implemented.

Option 4: Season Closures
Under this option, the season length (fishing days) would be restricted to certain time periods. The Board would need to consider:

- Closures by fishery
- The temporal distribution of the stock to implement the most effective season closures
- Fishing prohibited on specific days of the week (days out)
- Removal of passive gear types during closures
- Recoupment of harvest during open season

A benefit of season closures is that they are easily enforceable. A negative aspect is that they can create menhaden bycatch and regulatory discards of menhaden in directed fisheries for other species.

Option 5: Area Closures
Under this option, fishing would be prohibited in specific areas. The Board would need to consider:

- The spatial distribution of the stock to implement the most effective area closures (e.g., consideration of nursery areas)
- Recoupment of harvest in open areas
- Enforcement of areas closed

Area closures have the potential for creating protection for immature fish, spawning stock and the protection of ecosystem services, meaning the benefits that menhaden provide to ecosystem functions such as a food source for other species. A negative aspect is that they can create discard mortality of menhaden bycatch in directed fisheries for other species.

Option 6: Quotas
Under this option a limit is set for the amount of fish allowed to be caught by year or season. The Board would need to consider,

- TAC
- Allocation
    a) By fishery - guidance on how to set allocation (e.g. historical reference years)
    b) By state or region - guidance on how to set
    c) By state/federal waters
    d) By gear - guidance on how to set
    e) Transferability among entities allocated quota
    f) Consider overage and underage of quota including payback of overages and rollover of underages

- Catch shares, ITQ, IFQ
  a) Allocation formula for ITQ, catch share, IFQ (i.e. historical catch, vessel size based, combination of these two, etc)
- Monitoring requirements
- Bycatch allowance

Quotas are the most direct method to manage towards an F target. When used alone, in its simplest form, a quota has potential to create a derby fishery. A negative aspect is that and they can create discard mortality of menhaden bycatch in directed fisheries for other species after the quota is met. Additional monitoring requirements would be needed.

Option 7: Effort Controls

- Days at sea
  a) Board would need to consider the number of days fished, vessel size, fleet size
  b) By fishery, gear type, vessel type, state
  c) Will require historical estimates of catch rates. If VMS is required, monitoring becomes expensive (especially for smaller vessels).
- Vessel restrictions (upgrades, size, capacity)
  a) Board will need to consider vessel characteristics to define effort.

Option 8: Limited Entry

Under this option, a limited number of participants would be permitted to fish for Atlantic menhaden. The Board would need to consider,

- Control Dates
- Entrance criteria (e.g., based on participation, demonstrated dependence on the fishery)
- Permitting system by state

Limited entry would give a fixed number of entrants and gear types for the fishery thus creating a known universe of participants. When establishing a baseline of entrants, it can be difficult to maintain fairness.

Public Comment Questions: Should different sectors (bait and reduction) have different management measures? What other measures should be implemented to establish a more predictable fishery?

Issue 5. De Minimis Requirements

Background: Under the *de minimis* provisions of the ISFMP Charter, a state may be granted *de minimis* status (exempting it from certain, specified requirements by the Board) if, under existing conditions of the stock and scope of the fishery, conservation and enforcement actions taken by the state would be expected to contribute insignificantly to a required coastwide conservation program (ASMFC 2000). *De minimis* status could exempt a state from certain commercial or recreational measures, or monitoring requirements of a FMP.

Statement of the Problem: Amendment 1specifies that a state may be granted *de minimis* status if the Management Board determines that action by the state with respect to a particular management measure would not contribute significantly to the overall management program. The Amendment does not define *de minimis* criteria for menhaden. In general, other Commission FMPs use a one or two percent landings limit compared to coastwide total landings (or commercial and recreational landings separately).The Board may consider just commercial provisions for the commercial bait and commercial reduction fishery separately due to the magnitude of the landings in the reduction fishery relative to the coastwide harvest.

Public Comment Questions? Should the Board consider *de minimis* criteria and should the criteria be specific to the commercial bait, commercial reduction and recreational fishery?

BACKGROUND INFORMATION ON THE MANAGEMENT AND STOCK STATUS OF ATLANTIC MENHADEN

Summary of Fishery Management

The Commission has coordinated interstate management of Atlantic menhaden (*Brevoortia tyrannus)* in state waters (0-3 miles) since 1981. Management authority in the exclusive economic zone (EEZ, 3-200 miles from shore) lies with NOAA Fisheries.

In 1988, the Commission initiated a revision to the FMP. The Plan revision included a suite of objectives to improve data collection and promote awareness of the fishery and its research needs, including six management triggers used to annually evaluate the menhaden stock and fishery. In 2001, Amendment 1 was passed, providing specific biological, social, economic, ecological, and management objectives for the fishery.

Addendum I (2004) addressed biological reference points for menhaden, the frequency of stock assessments, and updating the habitat section currently in Amendment 1.

Addendum II instituted a harvest cap on Atlantic menhaden by the reduction fishery in Chesapeake Bay. This cap was established for the fishing seasons in 2006 through 2010. The Atlantic Menhaden Technical Committee determined the following research priorities to examine the possibility of localized depletion of Atlantic menhaden in the Chesapeake Bay: determine menhaden abundance in Chesapeake Bay; determine estimates of removal of menhaden by predators; exchange of menhaden between bay and coastal systems; and larval Studies (determining recruitment to the Bay).

Addendum III was initiated in response to a proposal submitted by the Commonwealth of Virginia that essentially mirrors the intent and provisions of Addendum II. It placed a five-year annual cap on reduction fishery landings in Chesapeake Bay. The cap, based on the mean landings from 2001 – 2005, was in place from 2006 through 2010. Addendum III also allowed a harvest underage in one year to be added to the next year's quota. The maximum cap in a given year is 122,740 metric tons. Though not required by the plan, other states have implemented more conservation management measures in their waters. Addendum IV (2009) extends the Chesapeake Bay harvest cap three additional years (2011-2013) at the same cap levels as established in Addendum III.

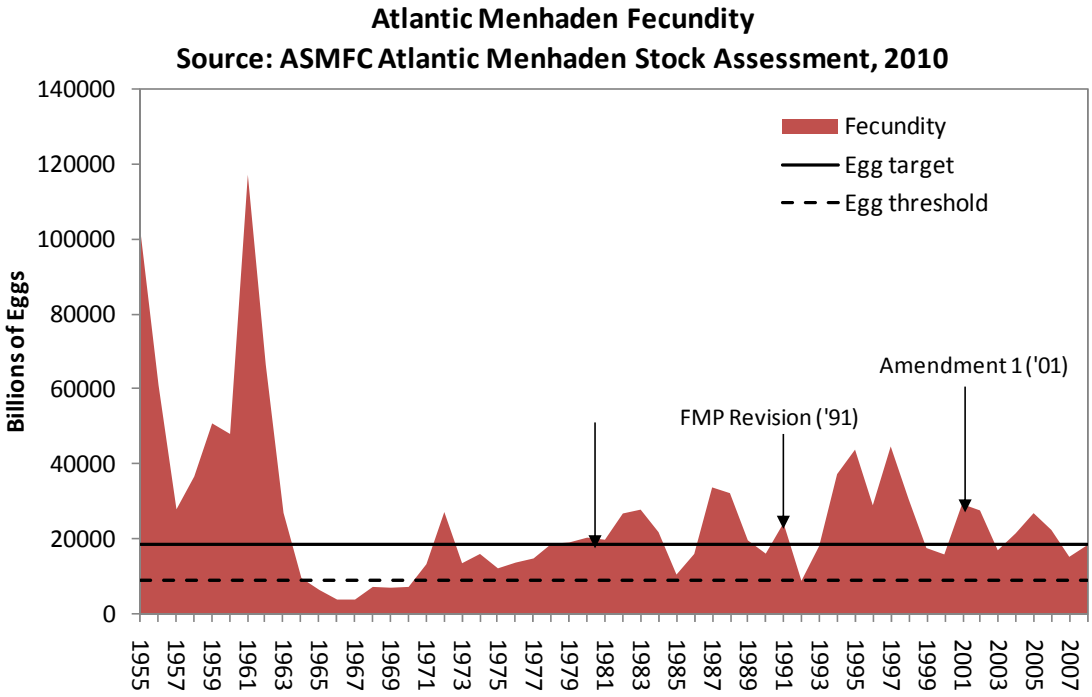
Addendum V, approved in November 2011, establishes a new F threshold and target rate (based on MSP) with the goal of increasing abundance, spawning stock biomass, and menhaden availability as a forage species.

Summary of Stock Status

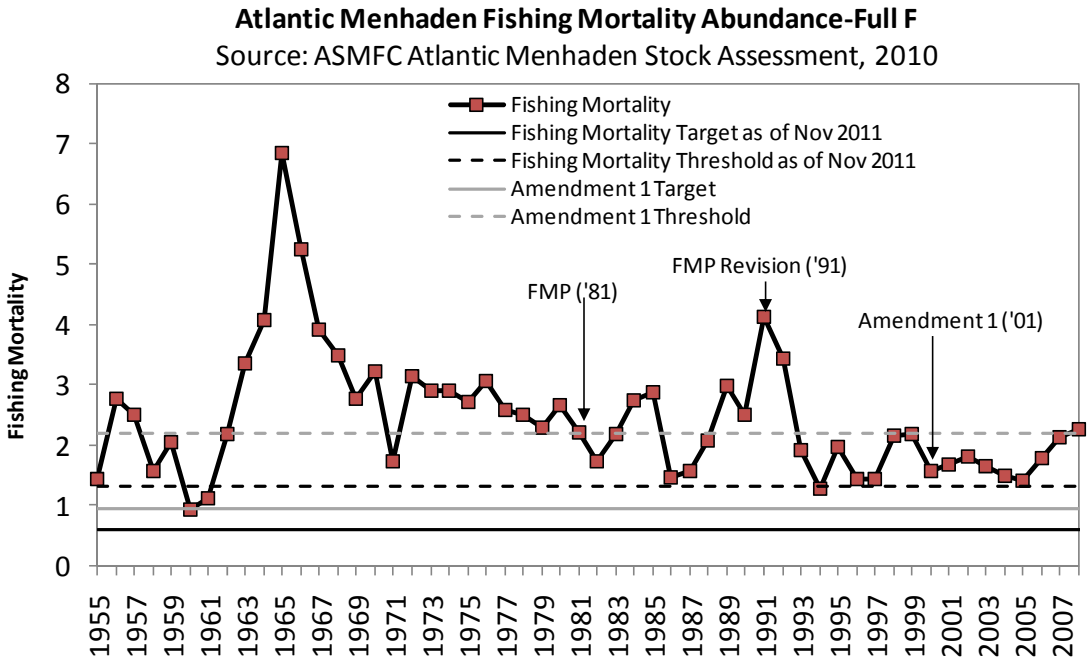
The latest peer reviewed stock assessment is the 2010 benchmark assessment. The assessment used the Beaufort Assessment Model a statistical catch-at-age model that estimates population size at age and recruitment in 1955 and then projects the population forward in time to the terminal year of the assessment (in the case of the 2010, the terminal year was 2008). The model estimates trends in population dynamics, including abundance at age, recruitment, spawning stock biomass, egg production, and fishing mortality rates.

Model results indicate the population has undergone several periods of both high and low abundance over the time series. Abundance has declined steadily since the peak observed in the early 1980s and recruitment (age 0 fish) has been relatively low. Population fecundity (measured as number of maturing ova, or eggs) was high in the late 1950s and early 1960s, low in the late 1960s, and generally increasing since that time. The biological reference point that determines the fecundity target for Atlantic menhaden is defined as the mature egg production expected when the population is being fished at the threshold fishing mortality rate.

Population fecundity in 2008 was estimated to be 18.449 trillion eggs or 99% of target (and 198% of the threshold). This means that the spawning stock in 2008 appears to be adequate to produce the target number of eggs, and thus the population is deemed not overfished. However, the number of young fish in the population has been consistently low in recent decades, indicating that high egg production may not be translating into high survival of young menhaden. Given this finding, the Peer Review Panel recommended examination of alternative reference points to provide more protection to the spawning stock biomass. The Board followed this advice by approving new fishing mortality reference points in November 2011.



F was highly variable throughout the entire time series, with a decline in F from the mid-1960s to the 1980s. Since the mid-1980s F have varied between some of the highest and lowest values in the entire time series. The model suggests a high degree of variability, but in general the reduction fishery has experienced declining fishing mortality rates since the mid-1960s, while the bait fishery has experienced increasing fishing mortality rates since the 1980s.



In 2008, the population was not overfished but overfishing was occurring, relative to the newly adopted biological reference points. The overfishing threshold for menhaden is now $F_{15\%MSP}$= 1.32. A 15% MSP would equate to a fishing mortality rate threshold required to maintain approximately 15% of the spawning potential of an unfished stock. For reference, an unfished stock is equal to 100% MSP. F on all ages in 2008 (the latest year in the assessment) is estimated at 2.28, which was above the new target and threshold, hence overfishing is occurring. Relative to the F threshold adopted in November 2011, overfishing was occurring in most years. F reference points were first implemented by the Commission in 2001, when F threshold was set at 2.2. Given this previous definition, overfishing had occurred in 32 of the last 54 years but was not occurring during the previous nine years, 1999-2007.

It is important to note that there is not a well defined stock recruitment relationship, and that lower landing levels do not necessarily increase spawning stock biomass. However, there is a possibility that the stock may be able to take greater advantage of favorable environmental conditions if a larger percentage of spawning adults remain in the population.

Social and Economic Impacts

A reduction in the total allowable catch, no matter the form would directly impact the Chesapeake reduction fishery employment profile. Potential reductions in workforce are estimated to be proportional to reductions in harvest.

Commercial fishermen who depend on menhaden harvesting to sell as bait would be impacted to the extent they could not have a suitable alternative. It is difficult to provide any direct and indirect impacts in the sector at this time. New England operators indicate that the most dramatic impact on their fishing operations would be inside, or bay, closures.

Data is currently lacking to accurately assess the impacts of specific measures. The Commission's Committee on Economics and Social Sciences (CESS) is working to compile and review all available data to assess the social and economic impacts of any management measures considered in Amendment 2. **Please submit any data that is relevant to this issue to the Commission for review by the CESS.**

The demand for menhaden as bait in other fisheries is directly dependent upon changes in the management programs of those other fisheries. For example in the American lobster fishery, the Southern New England (SNE) fishery is considering reduced lobster trap capacity to scale the fishery to the size of the SNE resource. If less lobster traps were fished, then the demand for menhaden as bait will most likely be reduced. Additionally, the demand of menhaden as bait will depend on the availability of other bait species. For example, the decreased availability of other forage fishes (e.g., Atlantic herring) may cause an increased demand for menhaden depending on individual stock sizes and the management of those fisheries.

Appendix 1.

Table 1. Summary of State Regulations

State	Met Reporting Requirement of Section 4.2.5.1	Summary of Regulations
ME	Yes	Commercial license and endorsement if gillnetting. Unlawful to fish more than 2000 feet of bait gillnet in territorial waters. Bait gillnet shall have less than 3.5 inches diamond or square stretch mesh throughout the entire net. Area pilot program with daily catch limits and vessel restrictions.
NH	Yes	State law prohibits the use of mobile gear in state waters.
MA	Yes	No specific menhaden regulations. Purse seining prohibited in some areas (mostly nearshore), and no purse seines larger than 100 fathoms may be used.
RI	Yes	Menhaden harvest by purse seine for reduction (fish meal) purposes is outlawed. No purse seines larger than 100 fathoms in length or 15 fathoms in depth may be used. Commercial gear and vessels need to be inspected and may not have a useable fish storage capacity greater than that that can hold 120,000 pounds of menhaden. Daily catch limit of 120,000 pounds per vessel when standing stock estimate reaches 3,000,000 pounds. When 50% of estimated weekly standing stock is harvested, or estimated weekly standing stock drops below a 1,500,000 pound threshold, the fishery closes until further notice. Permanent closures in specific areas.
CT	Yes	Purse seines prohibited in state waters. Menhaden can be caught by other gear and sold as bait. Personal gillnet restricted to mesh greater than 3 inches and net shall not exceed 60 feet in length.
NY	Yes	Purse seines limited to certain times/areas. Purse seine season commences on the Monday following the fourth day of July and ending on the third Friday in October.
NJ	Yes	Prohibited purse seining for reduction purposes in state waters. Mandatory reporting for purse seine (bait) fishery. Bait fishery subject to gear restrictions and closed seasons. In 2011, implemented a limited entry program for purse seine fishery. To purchase a license applicant must have purchased a license at least one year during 2002-2009 and a license in 2010. Length of vessel under permit is allowed to increase by 10% (not to exceed 90 feet) and up to 20% greater horsepower.
DE	Yes	Purse-seine fishery prohibited since 1992. No specific regulation of gillnetting for menhaden.

MD	Yes	Purse-seine fishing prohibited; menhaden harvested by pound net primarily.
PRFC	Yes	All trawling and purse nets are prohibited. In 2011, Pound net fishery which is limited entry must use at least six PRFC approved fish cull panels properly installed in each pound net to help release undersized fish.
VA	Yes	Unlawful to use any net with stretch mesh size of less than 1 3/4 inches.
NC	Yes	Combination of gear restrictions and seasonal and area closures (e.g., no purse seine fishing within 3 miles of coast of Brunswick Co. from May – October).
SC	Yes	Purse seines prohibited in state waters; requests *de minimis* status.
GA	Yes	State waters closed to purse seine fishing; requests *de minimis* status.
FL	Yes	Purse seines prohibited in state waters; primarily a cast net fishery; requests *de minimis*.

Table 2. Summary of Reporting Requirements

State	**Summary of Reporting Requirements**
ME	Mandatory dealer reporting began in 2008: trip level reporting collecting pounds and gear type. Mandatory trip level harvester reporting began in 2011: trip level reporting collecting area fished, pounds, gear, and disposition. Both are reported monthly on the 10th day of the following month.
NH	Mandatory harvester reporting on a trip level through state logbook. Includes area fished, pounds, gear, and disposition. State dealers are not required to report menhaden but Federally permitted dealers are.
MA	Mandatory comprehensive trip-level reporting for all fishermen started in 2010. MA fishermen with federal permits report their landings to NMFS via their VTRs (weekly reporting schedule, due following the Tuesday by midnight). MA fishermen without federal permits report their landings to MA DMF (monthly reporting schedule, due 15th of the following month). Mandatory comprehensive transaction-level reporting for all dealers began in 2005. All dealers purchasing directly from fishermen, whether federally permitted or not, are required to report a week's transactions by the following Tuesday at midnight
RI	Mandatory dealer reporting through SAFIS. Mandatory logbook requirement for harvesters including area fished, gear, weight. Call in requirement for commercial fishing in Narragansett Bay which is in addition to the SAFIS reporting.
CT	Mandatory monthly harvester logbooks, and weekly and monthly dealer reports. These reports contain daily records of fishing and the disposition and dealer purchase activity including gear type and area fished. Logbooks are due on the 10th of the following month

NY	Mandatory VTR reporting for all commercial harvesters, reports are due monthly. Lobster bait permit holders can harvest menhaden and report pounds landed annually when they renew their lobster license. Mandatory weekly electronic dealer reporting including weight, price, area, dealer and harvester ID.
NJ	Mandatory trip level harvester reporting: area and pounds landed reported on a monthly basis. Reported monthly by the 10th of the following month. Require "no harvest" reports - if fishermen didn't harvest anything for a month, they must still submit a monthly report. No dealer reporting requirements.
DE	Mandatory harvester reporting: trip level reporting collects pounds of fish, area fished, gear used, fishing time, trip length reported monthly
MD	Mandatory harvester reporting: trip level reporting collects pounds of fish, area fished, gear used, trip date, port landed; reported monthly
PRFC	Mandatory harvester trip level for commercial fishing reported weekly.
VA	Implemented CDFR reporting requirement for bait seine/snapper rigs in 2002. The reduction fishery landings in VA are reported via daily catch records and CDFRs to the NMFS. All harvest reports are daily trip reports due monthly on the 5th of the following month.
NC	Mandatory commercial fishery reporting (trip ticket). Trip tickets for a given month are submitted to the NCDMF by the 10th of the following month. NC requires all individuals or businesses that buy seafood in the state must have a seafood dealer's license and must buy only from licensed fishermen. These dealers are mandated to report all fish and shellfish landings per trip to the NCDMF. Each trip ticket includes the amount in units/pounds of each species landed, type of gear(s) fished, water body from which the majority of the catch was harvested, start date of the trip, date of landing, number of crew, and license numbers.
SC	Mandatory trip level dealer reporting. But bait dealers are not required to report. Prior to implementation of the ACCSP trip level data reporting (September 2003), licensed wholesale dealers were required to submit monthly summaries of their seafood harvest business transactions. The only data elements we collected were species, quantity, unit price, area caught and gear used.
GA	Mandatory commercial fishery reporting trip ticket.
FL	Mandatory commercial fishery reporting (trip-ticket) began in 1984. Dealer based trip level reporting that collects both harvester and dealer ID, gear type, soak time, pounds, area fished, value. Reports are submitted monthly on the 10th day of the following month.

Table 3. Menhaden Bait Landings by State in Pounds, 1981 - 2011

	ME	NH	MA	RI	CT	NY	NJ	DE	MD	PRFC	VA	NC	SC	GA	FL
1981					151,349	533,200			5,349,055	20,371,865	31,171,512		8,487		
1982					171,086	394,300	1,637,357	58,300	5,190,816	17,989,434	22,019,986		0		413,299
1983					129,300	216,300	1,581,454	41,000	3,534,724	20,820,945	24,482,553		34,000		1,150,426
1984					186,900	692,500	2,242,112	208,000	2,002,405	13,121,597	14,527,306	791,000	0		1,036,968
1985	1,891,383		3,039,625	8,388,046	234,800	901,800	2,879,766	176,135	2,157,406	16,768,889	17,320,505	2,925,363			1,091,685
1986	16,250,100		3,411,000	10,389,187	254,400	365,885	2,453,593	20,081	2,262,891	10,971,973	9,885,311	3,566,771	9,952		872,984
1987	14,361,840	4099	1,215,175	13,609,224	94,900	178,337	2,563,163	22,034	2,367,378	13,120,495	14,318,627	4,031,181	3,934		1,309,485
1988	19,685,728	5147	8,047,320	15,583,437	175,200	475,198	1,984,045	127,713	2,242,480	13,231,368	11,976,740	4,376,073	500		1,017,957
1989	380,619	5424	1,459,402	19,033,173	148,500	292,250	2,854,361	104,382	3,778,616	8,334,174	24,310,430	5,228,178	0		1,372,480
1990	5,744,597	6044	1,709,605	17,102,650	96,706	400,510	9,041,459	167,119	1,662,275	4,523,776	18,224,186	4,761,649	0		2,636,486
1991	13,893,963	11747	12,798,310	5,090,375	96,300	638,750	16,597,402	278,774	3,126,345	5,376,264	14,487,238	4,308,294	0		2,495,968
1992	10,980,056	10225	13,499,450	2,849,359	91,200	445,100	27,470,906	105,718	1,777,088	5,061,565	16,233,980	3,408,522			2,746,484
1993	19,101,041	3710	1,211,569	5,146,280	195,827	958,877	28,296,741	164,052	1,806,638	7,884,001	7,180,045	1,577,284	0		2,584,766
1994	0	1027	351,251	533,800	60,128	899,416	38,176,201	78,672	2,575,135	6,680,937	5,664,923	5,605,871	0		1,387,012
1995	0	1590	2,910,613	5,873,315	217,639	1,087,978	36,572,507	101,388	5,401,700	7,002,818	6,154,703	2,792,186	0		660,272
1996	0	73	8,500		76,251	11,135	35,516,726	100,063	3,906,808	5,111,423	5,398,888	1,002,013	0		272,386
1997	0	0	238,500		72,329	553,953	38,118,579	55,733	3,457,237	5,757,370	5,281,783	3,446,667			408,492
1998	1,323	9	121,200		338,817	29,334	33,287,641	58,048	2,780,208	3,980,738	42,878,664	3,193,385	0		301,890
1999	1,716	0	292,800		30,298	11,511	27,753,567	78,466	4,392,802	4,860,883	39,235,562	2,651,470	0		281,863
2000	1,453	0	72,600		14,423	4,646	31,266,780	47,980	3,935,307	5,023,374	34,444,488	1,887,202	0		254,252
2001	190	0	144,600		38,865	296,116	26,375,573	53,257	3,970,243	3,329,035	42,822,552	2,868,578	0		156,504
2002	70,002	0	301,500		1,138,788	6,480	24,716,412	80,291	3,577,717	3,122,050	45,678,338	2,456,686	0		55,304
2003	0	0	218,255		46,515	436,069	17,080,463	42,593	3,162,257	2,438,790	49,522,762	1,710,212	0		35,810
2004	0		0	39,232	33,210	290,235	20,678,813	75,426	5,369,592	5,411,043	45,287,321	1,092,453	0		20,870
2005	30,311	273	2,177,724	14,086	30,636	216,832	17,574,826	121,351	10,441,961	4,759,545	48,797,352	1,502,455	0		36,298
2006	37,047		2,524,255	15,524	866,235	0	21,290,309	111,308	4,269,562	3,413,517	24,369,322	962,648	0		157,117
2007	134,687	484	5,543,805	8,948	90,254	0	37,202,485	81,546	9,060,731	5,036,906	35,587,999	1,134,167	0		71,247
2008	4,156,005	408	13,370,200	268,788	104,881	234,700	38,210,688	72,970	5,659,101	4,820,645	36,627,423	645,231	0		44,327
2009	452,355	33	6,719,048		173,252	226,980	32,787,777	69,476	5,667,415	3,191,905	33,614,601	2,124,733	0		52,800
2010	46,162	390	4,973,944	77,089	44,967	300,120	50,497,293	51,933	6,885,330	2,790,728	32,729,719	1,299,130	0	0	60,307
2011*	NA	0	118,162	81,300	7,696	58,080	74,324,485	64,566	6,829,860	2,901,197	NA	3,514,829	0		139,980

*2011 harvest is preliminary

[redacted] cells can not be reported because the data are confidential

NA: Not available

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