

FISHERY ASSESSMENT REPORT

IFFO GLOBAL STANDARD FOR RESPONSIBLE SUPPLY OF FISHMEAL AND FISH OIL



R1

FISHERY:	Atlantic menhaden (<i>Brevoortia tyrannus</i>)
LOCATION:	USA (Virginia, New Jersey, North Carolina)
DATE OF REPORT:	August 2018
ASSESSOR:	Deirdre Hoare

Global Trust Certification Ltd, 3rd Floor, Block 3, Quayside Business Park, Mill Street, Dundalk, Co. Louth, Ireland Tel: 042 932 0912 Fax 042 938 6864

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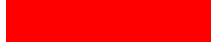
1. APPLICATION DETAILS AND SUMMARY OF THE ASSESSMENT OUTCOME			
Name:			
Address:			
Country:		Zip:	
Tel. No.		Fax. No.	
Email address:		Applicant Code	
Key Contact:		Title:	
Certification Body Details			
Name of Certification Body:		Global Trust Certification Ltd.	
Assessor Name	Peer Reviewer	Assessment Days	Initial/Surveillance/Re-certification
Deirdre Hoare	Jim Daly	3	Surveillance
Assessment Period	2017		
Scope Details			
1. Scope of Assessment		IFFO Global Standard for Responsible Supply – Issue 1	
2. Fishery		Atlantic menhaden (<i>Brevoortia tyrannus</i>)	
3. Fishery Location		USA (Virginia, New Jersey, North Carolina)	
4. Fishery Method		Purse seine	
Outcome of Assessment			
5. Overall Fishery Compliance Rating		High	
6. Sub Components of Low Compliance		None	
7. Information deficiency		None	
8. Peer Review Evaluation		Maintain approval	
9. Recommendation		Maintain approval	

2. QUALITY OF INFORMATION
Good; primarily ASMFC and SEDAR reports and websites
3. COMPLIANCE LEVEL ACHIEVED
High
Recommendation
Maintain fishery approval.
4. GUIDANCE FOR ONSITE ASSESSMENT
Based on HIGH compliance findings
Based on MEDIUM compliance findings
Based on LOW compliance findings
5. ASSESSMENT DETERMINATION
<p>The majority of management processes and frameworks have remained unchanged since the initial assessment. The most significant event was the publication of the 2015 SEDAR benchmark stock assessment, which reinforced or improved upon the conclusions of the initial assessment. AN update assessment was then carried out in 2017. The stock is no longer categorised as overfished, and continues to be categorised as not subject to overfishing. In response to this, the ASMFC have increased the quotas; both in 2015 and 2018. Quotas for 2018 have again increased from 198,000 t to 216,000 t.</p> <p>The initial approval was made on the condition that the first surveillance should ensure that the fishery adheres to the (at the time) newly-introduced TAC. Now there is sufficient landings data available to the assessment team to show that landings have not exceeded the TAC (Table 2 Section D1).</p> <p>Peer Reviewer is in agreement with this assessment.</p>
HIGH Compliance
A1, A2, A3, B1, B2, C1, D1, D2, D3, E1, E2
MEDIUM Compliance
LOW Compliance
None

SUMMARY OF LEVEL OF COMPLIANCE					
	The Management Framework and Procedures	Stock assessment procedures and management advice	Precautionary approach	Management measures	Implementation
Legal and administrative basis	A1				
Fisheries management should be concerned with the whole stock unit	A2				
Management actions should be scientifically based	A3				
Research in support of fisheries conservation and management should exist		B1			
Best scientific evidence available should be taken into account when designing conservation and management measures		B2			
The precautionary approach is applied in the formulation of management plans			C1		
The level of fishing permitted should be set according to management advice given by research organisations				D1	
Where excess fishing capacity exist, mechanisms should be in established to reduced capacity				D2	
Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment				D3	
A framework for sanctions of violation of laws and regulations should be efficiently exists					E1
A management system for fisheries control and enforcement should be established					E2

KEY:

Low Compliance:



Medium Compliance:



High Compliance:

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6. RATIONALE OF THE ASSESSMENT OUTCOME	
A. THE MANAGEMENT FRAMEWORK AND PROCEDURE	
LEVEL OF COMPLIANCE	
A1. The management of the fishery must include a legal and administrative basis for the implementation of measures and controls to support the conservation of the fishery.	
LOW	An administrative framework that ensures an efficient management of the fishery for its conservation is not established.
MEDIUM	An administrative framework that ensures an efficient management of the fishery for its conservation is somehow established, but there is evidence of not being efficient to ensure the conservation of the stock.
HIGH	A legal and administrative framework that ensures an efficient management of the fishery for its conservation is established and works efficiently toward the conservation of the stock.
Determination: A legal and administrative framework that ensures an efficient management of the fishery for its conservation is established and works efficiently toward the conservation of the stock.	
Overview <p>Atlantic menhaden is distributed throughout the coastal western Atlantic, from Nova Scotia to Florida. Bait fisheries for Atlantic menhaden occur along the entire east coast of the USA; however, the reduction fishery is prosecuted primarily in Virginia, with some seasonal catches in North Carolina and New Jersey. Although the management of the Atlantic menhaden stock is co-ordinated by the Atlantic States Marine Fisheries Commission (ASMFC), management measures are implemented and enforced by individual states. Additionally, while there are some landings from the federal waters between 3-200nm from shore, management authority is vested in the states because the large majority of menhaden are caught in the state waters within 3nm of shore (as per the Atlantic Coastal Fishery Conservation and Management Act). In addition to the data collection and analysis conducted by individual states and the ASMFC, further scientific support is provided by the federal National Oceanic and Atmospheric Administration (NOAA). This assessment covers the reduction fishery only, and considers management at state, inter-state and federal levels as appropriate for each section.</p>	
Federal management <p>Atlantic menhaden is not fished in the federal waters between 3nm and 200nm from shore, and therefore does not fall under federal jurisdiction in the USA. However, the NOAA Chesapeake Bay Office provides objective scientific support on the regional management of Atlantic menhaden, and has funded a variety of research projects. These include projects to determine menhaden abundance in Chesapeake Bay, where the majority of reduction catch is taken; to estimate menhaden removal by predation; to determine the flux of menhaden between the estuarine and coastal systems; and to understand larval recruitment dynamics in the Chesapeake Bay and waters of the mid-Atlantic.</p>	
Atlantic States Marine Fisheries Commission <p>The ASMFC was formed in 1942 by Interstate Compact between the 15 Atlantic states with the objective, “to promote the better utilization of the fisheries, marine, shell and anadromous, of the Atlantic seaboard by the development of a joint program for the promotion and protection of such fisheries, and by the prevention of the physical waste of the fisheries from any cause”. It currently coordinates the conservation and management of 25 near-shore fish species including Atlantic menhaden, and is funded by a combination of member state dues and state and federal grants. The ASMFC develops, agrees and publishes Interstate Fishery Management Plans (IFMPs) for each fish species. The current ASMFC vision statement is, “Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015”. Although the Commission is made up of representatives of all member states, seasons, catch limits and other management measures must generally be approved by the governmental bodies in each applicable state before they are implemented. In other words, the ASMFC does not have direct control over states’ fishery management measures.</p>	

Virginia

Management of commercial and recreational fisheries in Virginia's coastal waters is the responsibility of the Virginia Marine Resources Commission (VMRC). In particular, the Fisheries Management Division of the VMRC collects fisheries statistics and data, develops fishery management plans, and participates in fisheries management at the inter-state level, including with the ASMFC. The VMRC is also responsible for licencing, control and enforcement in Virginia waters. Important state fisheries legislation informing the operation of the VMRC includes the Virginia Wetlands Act (1972), the Marine Patrol Act (1979), and the Fishery Management Policy Act (1984).

North Carolina

The North Carolina Division of Marine Fisheries (DMF), part of the Department of Environment and Natural Resources (DENR), is responsible for the management and conservation of the state's marine and estuarine resources. Agency policies are established by the 9-member Marine Fisheries Commission and the Secretary of the DENR. The DMF is divided into nine sections, including Fisheries Management, Marine Patrol, License & Statistics, and Habitat Protection. Important legislation includes the Fisheries Reform Act (1997) and Chapter 3 of the NC Administrative Code 2013.

New Jersey

Management of marine fish stocks in New Jersey's state waters falls under the jurisdiction of Bureau of Marine Fisheries (BMF), part of the NJ Division of Fish and Wildlife (DFW), which itself is a component of the Department of Environmental Protection. The objective of the BMF is to conduct fisheries research, develop and implement management plans, and to protect and enhance fish stocks and habitats. Legislation is generally contained within Title 23 of the New Jersey Permanent Statute (Fish and Game, Wild Birds, and Animals).

R2

LEVEL OF COMPLIANCE

A2. Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account fishery removals and the biology of the species.

LOW	Fisheries management is not concerned with the whole stock unit over its entire area of distribution and do not take into account any of the matters listed in 'A1'.
MEDIUM	Fisheries management is concerned with matters listed in 'A1' but not entirely. Fisheries, in relation to 'A1' statement, should improve to ensure the long term conservation of the marine resource.
HIGH	Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account: <ul style="list-style-type: none"> All fishery removals The biology of the species

Determination: The management unit accurately reflects the current scientific understanding of the biological stock, all fishery removals are considered by managers (or have been deemed to be insignificantly small), and biological characteristics feature heavily in both stock assessments and the IFMP.

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Atlantic menhaden is distributed along the eastern coast of the USA from Maine to Florida (see figure 1), although the highest concentrations are usually found between Massachusetts and North Carolina. The management unit is defined as "throughout the range of the species within U.S. waters of the northwest Atlantic Ocean from the estuaries eastward to the offshore boundary of the EEZ". Historically there has been some debate over whether Atlantic menhaden in USA waters exists as a single stock or is divided into a northern and a southern population. A paper published in 1991 noted that although a number of menhaden spawning cohorts exist, they appear to mix rapidly as a result of their extensive migratory movements and are virtually inseparable in the commercial fishery. More recent genetic studies also

support the single-stock hypothesis, and so the management unit for Atlantic menhaden is in line with the current best scientific understanding of the biological stock.

Landings and other sampling data for the reduction fishery have been recorded since 1955 and for the bait fishery since 1985. All landings are included in stock assessment models, and although discards and bycatch of Atlantic menhaden in other fisheries are not included they are considered to be trivial in comparison to the scale of landings. Managers also take extensive account of the biology of the species, and stock assessments contain sections covering migratory patterns, life history, habitats, environmental factors and other potential variables.

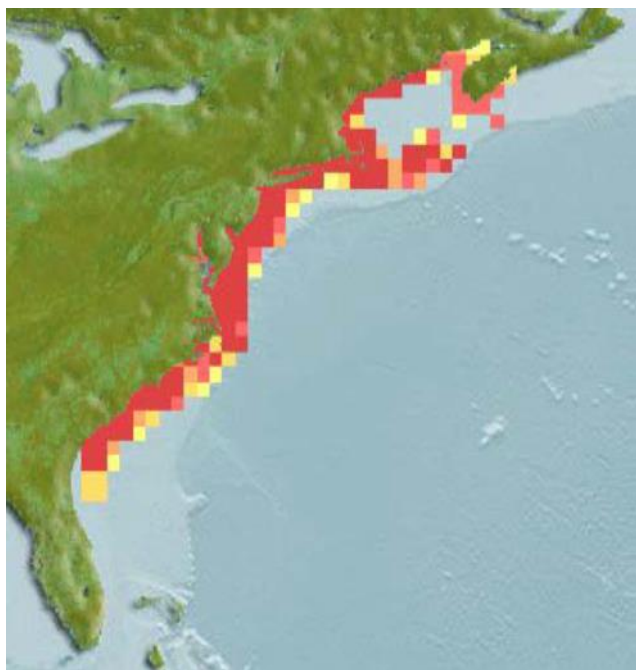


Figure 1. Atlantic menhaden native distribution (red and yellow areas). From the Fishbase species page (R1).

R2, R3

LEVEL OF COMPLIANCE

A3. Management actions should be based on long-term conservation objectives

LOW	Management actions are not based on long term management objectives.
MEDIUM	Management actions are based on long term management objectives. However the actions are not scientifically formulated.
HIGH	Management actions are based on long term management objectives, and actions are science based.

Determination: Atlantic menhaden are managed according to the contents of a frequently-updated Interstate Fishery Management Plan, which has been in place since 1981. Objectives include target and limit reference points for fishing mortality and biomass, and also commitments to improve data collection, conduct thorough stock assessments, and further develop an ecosystems-based approach to management.

Management actions are grounded in an Interstate Fishery Management Plan developed, published and regularly updated by the ASMFC. The plan was first put in place in August 1981, but has been subject to a number of addendums and additions since that time, most recently in November 2017. The stated objectives of the most recent version of the IFMP are as follows:

“to manage the Atlantic menhaden fishery in a manner which equitably allocates the resource’s ecological and economic benefits between all user groups. The primary user groups include those who extract and utilize menhaden for human use, those who extract and utilize predators which rely on menhaden as a source of prey, and those whose livelihood depends on the health of the marine ecosystem.”

The early versions of the IFMP did not stipulate specific management actions nor objectives, but successive revisions and addenda have progressively added and adjusted the aims of the plan. Amendment 1, passed in 2001, provided specific biological, socio-economic, ecological and management objectives for the fishery. The 2010 stock assessment noted that Atlantic menhaden abundance and recruitment had been low for a number of years, prompting the development of Amendment 2 in 2012. Amendment 3 in 2017 addresses a suite of commercial management measures including allocation, quota transfers, quota rollovers, incidental catch, the episodic events set aside program, and the Chesapeake Bay reduction fishery cap.

Reference points for the stock are set relative to Maximum Spawning Potential (MSP), where 100% MSP is the situation in a completely unfished stock. As of the introduction of Amendment 3 (2017), the overfishing threshold is set at F21%MSP with a target of F36%MSP. Target biomass is likewise SSB36%MSP with a limit reference point of SSB21%MSP – based on the 2017 stock assessment update, these translate to $SSB_{target} = 99.5 \times 10^{12}$ eggs and $SSB_{threshold} = 57 \times 10^{12}$ eggs. The Menhaden Management Board develops management actions based on the status of the stock in relation to the reference points. For example, the IFMP states that if the current F-value exceeds the threshold (F21%MSP), the Board will take steps to reduce F to the target level. One example of such action is the introduction by Amendment 2 of an annual TAC across all prosecuting states. Quotas have also been increased; both in 2015 and 2018. Quotas for 2018 have again increased from 198,000 t to 216,000 t (ASMFC 2017b). However bycatch landings (<6,000 pounds per trip approximately 2,686 t per year total) are not counted against this quota (ASMFC 2018).

Other management measures include: i) a coast-wide TAC of ~214,000 tonnes for 2018, which was then split up state-by-state; ii) A Chesapeake Bay reduction fishery harvest cap (new annual cap is now 98,192 tonnes for 2018), with additional specifications on the rollover of unlanded fish between years (ASMFC 2016; ASMFC 2017b) and iii) requirements for timely reporting of catch and compliance with regulations (ASMFC, 2012c) (ASMFC 2016; ASMFC 2017b)

Other explicitly-stated objectives of the IFMP include:

- Maintain a uniform data collection system for the reduction fishery and develop new protocols for other harvesting sectors, including biological, economic, and sociological data.
- Evaluate, develop, and improve approaches or methodologies for stock assessment including fishery-independent surveys and variable natural mortality at age or by area.
- Improve understanding of menhaden biology, food web ecology and multispecies interactions that may bear upon predator-prey and recruitment dynamics.

The IFMP is also subject to an annual review, which examines the effectiveness of management measures and the level of compliance at state level.

R2, R5, R19, R20 - 22

B. STOCK ASSESSMENT PROCEDURES AND MANAGEMENT ADVICE	
LEVEL OF COMPLIANCE	
<i>B1. Research in support of fisheries conservation and management should exist.</i>	
LOW	Research to support the conservation and management of the stock, non-target species and physical environment does not exist
MEDIUM	Research to support the conservation and the management of the stock, non-target species and physical environment exists, however research programmes could be significantly improved to decrease scientific advice uncertainty.
HIGH	Research to support the conservation and the management of the stock, non-target species and physical environment exist, and existent research is considered most adequate for the long term conservation of the target, non-target and physical environment
<p><i>Determination: Management of Atlantic menhaden is informed by a range of fishery-dependent and fishery-independent data sources which are adequate to enable the long-term conservation of the stock. Research to support the conservation of non-target species and the physical environment also exists.</i></p> <p>Management of the stock is informed by data collection at the state and inter-state levels, and by frequent stock assessments conducted by the ASMFC. The most recent stock assessment was conducted in 2015, and an update assessment carried out in 2017 and published by Southeast Data, Assessment and Review (SEDAR). As of the most recent updated assessment in 2017 stock biomass/ fecundity is slightly below (~15%) its fecundity target while fishing mortality is well below threshold levels.</p> <p>The report also recommends updated reference points for the fishery based on the outcomes of the latest benchmarking. Despite these recommendations representing more conservative reference points, the current fishery remains neither overfished nor subject to overfishing when compared to them.</p>	

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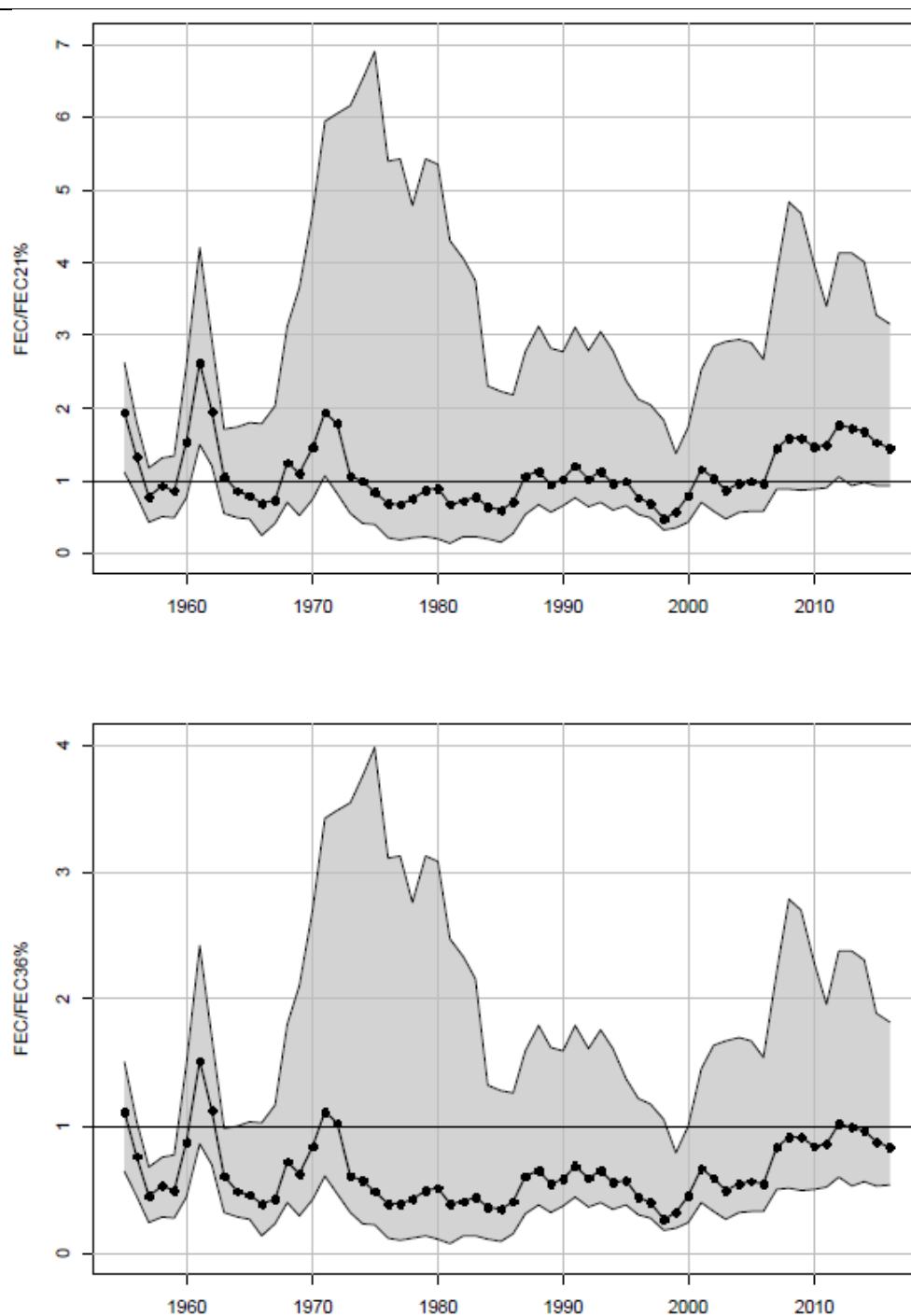


Figure. 2 Fecundity over time compared to the recommended fecundity based benchmarks associated with the SPR benchmarks based on the minimum and median $F_{X\%}$ during the time period 1960-2012. R22

R2, R3, R22

LEVEL OF COMPLIANCE

B2. Best scientific evidence available should be taken into account when designing conservation and management measures.

LOW

Scientific advice is not taken into account when designing conservation and management measures.

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MEDIUM	Scientific advice is taken into account, when designing conservation and management measures. However some areas of discrepancy are identified that could have a significant impact in the long term conservation of the marine environment.
HIGH	Scientific advice is taken into account, when designing conservation and management measures, in a comprehensive manner.
<p><i>Determination: The design of conservation and management measures is rooted in the outcomes of stock assessments, IFMP reviews, and other scientific processes. The assessment team did not encounter any examples of scientific advice being ignored.</i></p> <p>ASMFC stock assessments form the basis for the development and amendment of management measures via the IFMP; as such, scientific evidence is the starting point for the management of the fishery and informs every stage of the process. The initial assessment provided a number of examples of recent, rapid responses by managers to scientific recommendations. In response to the 2017 stock assessment report, the Atlantic Menhaden Management Board of the ASMFC has already:</p> <ul style="list-style-type: none"> • Increased the TAC for 2018 and 2019 to 216,000t, and; • A Chesapeake Bay reduction fishery harvest cap (new annual cap is now 98,192 tonnes for 2018), with additional specifications on the rollover of unlanded fish between years • and requirements for timely reporting of catch and compliance with regulations • Committed to the development of an amendment to establish ecologically-based reference points. <p>As at the time of the initial assessment, the assessment team was not able to find any significant examples of scientific recommendations being ignored.</p> <p>R2, R3, R21, R23</p>	

C. THE PRECAUTIONARY APPROACH	
LEVEL OF COMPLIANCE	
<i>C1. The precautionary approach is applied in the formulation of management plans.</i>	
LOW	The precautionary approach is not applied in the formulation of management plans.
MEDIUM	The precautionary approach is applied, however not all uncertainties are taken into account.
HIGH	The precautionary approach is applied, taking into account uncertainties relating to the dynamic of fish population (recruitment, mortality, growth and fecundity), and the impact of the fishing activities, such as discards and by-catch of non-target species as well as on the physical environment (Habitats).
<p><i>Determination: Potential sources of error in the data used to conduct stock assessments are identified and form part of the analysis. In general, the management approach in the Atlantic menhaden fishery appears precautionary and conservative</i></p> <p>The regular Atlantic menhaden stock assessment includes consideration of potential sources of bias and uncertainty in all the data sources used to conduct the assessment, and in the results of the assessment itself. The 2015 and 2017 SEDAR report includes consideration of uncertainties in all data sources, including those identified in the initial assessment. The results of the stock assessment are presented with 95% confidence intervals. A further example of the precautionary nature of management is the recommended increase in the stock reference points. At the time of the initial assessment, a similar action increasing how conservatively the reference points were set had recently been introduced. As shown in section B1, a similar recommendation has just been made in the SEDAR report, to correct for the fact that biomass was particularly low at the time the previous points were set.</p> <p>R2, R3, R19</p>	

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D. MANAGEMENT MEASURES	
LEVEL OF COMPLIANCE	
<i>D1. The level of fishing permitted should be set according to management advice given by research organisations.</i>	
LOW	The level of fishing permitted is not set according to management advice given by research organisations.
MEDIUM	The level of fishing permitted is higher than management advice given by research organisations. However, the difference is not considered to have a significant impact of the sustainability of the stock
HIGH	The level of fishing permitted is set according to management advice given by research organisations.
<p><i>Determination: The level of fishing permitted is set according to management advice given by research organisations.</i></p> <p>Historically, the Atlantic menhaden fishery has not been subject to direct restrictions on the total level of fishing permitted. The 2012 FMP established a 170,800t TAC in response to findings that the stock was overfished, landings for 2013 were 131,000t. As a result of the low fishing mortality found by the 2015 stock assessment, in May 2015, the Board approved a total allowable catch (TAC) of 187,880 metric tons per year for 2015 and 2016 for the entire Atlantic Coast, including the Chesapeake Bay. This is a 10% increase from the 2014 TAC. Quotas for 2018 have again increased from 198,000 t to 216,000 t (<i>ASMFC 2017b</i>). However bycatch landings (<6,000 pounds per trip approximately 2,686 t per year total) are not counted against this quota (<i>ASMFC 2018</i>).</p> <p>The TAC allocates a specific catch limit to each state. Maryland is allocated 1.37% of the total coastwide catch; the Potomac River Fisheries Commission is allocated 0.62%; Virginia is allocated 85.32%. States are required to close their fisheries when they reach their specific catch allowance (NOAA, 2012). The stock assessment does not include a specific TAC recommendation, but this action is consistent with the precautionary approach when considering the stock status in relation to reference points.</p> <p>Table 2. Fishing effort and landings in the Atlantic Menhaden purse-seine fishery, 1955 – 2017</p>	

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Fishing effort and landings in the Atlantic Menhaden purse-seine fishery, 1955-2017					
Year	Fishing effort vessel-weeks	Landings 1,000 metric tons	Year	Fishing effort vessel-weeks	Landings 1,000 metric tons
1955	2748	641.4	1987	531	327.0
1956	2878	712.1	1988	604	309.3
1957	2775	602.8	1989	725	322.0
1958	2343	510.0	1990	826	401.2
1959	2847	659.1	1991	926	381.4
1960	2097	529.8	1992	794	297.6
1961	2371	575.9	1993	626	320.6
1962	2351	537.7	1994	573	260.0
1963	2331	346.9	1995	600	339.9
1964	1807	269.2	1996	528	292.9
1965	1805	273.4	1997	616	259.1
1966	1386	219.6	1998	437	245.9
1967	1316	193.5	1999	382	171.2
1968	1209	234.8	2000	311	167.2
1969	995	161.6	2001	334	233.7
1970	906	259.4	2002	318	174.0
1971	897	250.3	2003	302	166.1
1972	973	365.9	2004	345	183.4
1973	1099	346.9	2005	291	146.9
1974	1145	292.2	2006	322	157.4
1975	1218	250.2	2007	333	174.5
1976	1163	340.5	2008	262	141.1
1977	1239	341.1	2009	300	143.8
1978	1210	344.1	2010	356	183.1
1979	1198	375.7	2011	324	174.0
1980	1158	401.5	2012	279	160.6
1981	1133	381.3	2013	196	131.0
1982	948	382.4	2014	201	131.1
1983	995	418.6	2015	182	143.5
1984	892	326.3	2016	213	137.4
1985	577	306.7	2017	185	128.9
1986	377	238.0			

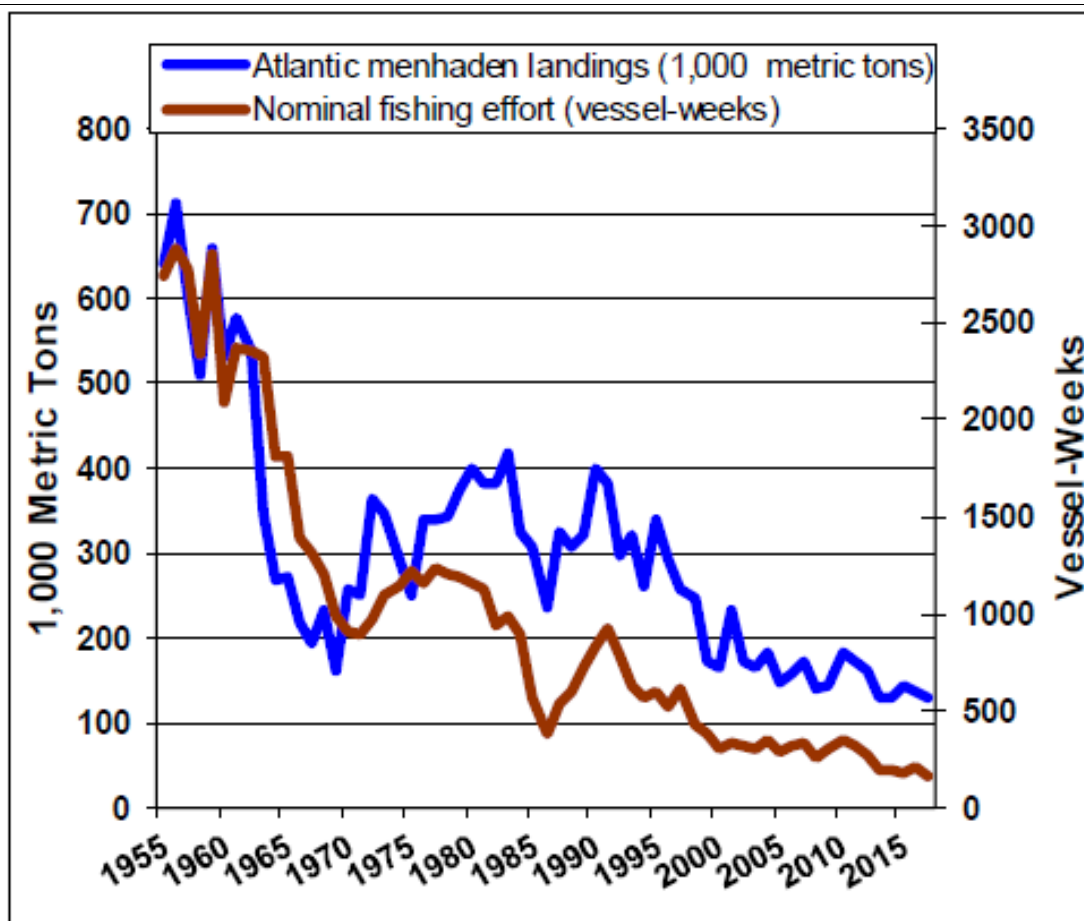


Figure 2. Atlantic Menhaden landings in 1,000s of metric tons (mt) and nominal fishing effort in 1,000s of vessel- weeks (VW), 1955 -2017. Source NOAA 2018

R2 – R4, R20, 21, 24

LEVEL OF COMPLIANCE

D2. Where excess fishing capacity exist, mechanisms should be in established to reduced capacity to allow for the recovery of the stock to sustainable levels.

LOW	Mechanisms to allow for recovery of the stock to sustainable levels are not established.
MEDIUM	Mechanisms to allow for recovery of the stock to sustainable levels are somehow established. However there is no evidence of the efficiency of the methods used.
HIGH	Mechanisms are established to reduce capacity to allow for the recovery of the stock to sustainable levels and there are evidences of recovery.

Determination: Fishing capacity in US fisheries is monitored and reported upon by the NMFS, which as a range of management measures and direct approaches available to tackle excess capacity when it is found.

In August 2004 the NMFS published the United States National Plan of Action for the Management of Fishing Capacity. The main pledges by NMFS set out within were as follows:

- Establish and, when necessary and appropriate, revise the medium and long-term national capacity reduction targets
- Prepare regular assessments of overcapacity in federally managed fisheries
- Work with the regional fisheries Councils to reduce overcapacity in fisheries under their jurisdiction

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- Convene a national meeting in 2005 that addresses, among other things, the capacity issue, where NOAA Fisheries and its constituents can review progress and focus on future priorities
- Help the Councils develop/ prioritize goals for capacity reduction in specific fisheries

Section 312(b) of the Magnuson-Stevens Fishery Conservation and Management Act authorizes NOAA Fisheries to conduct a fishing capacity reduction program if funds are provided and it is determined that such a program is necessary to prevent or end overfishing, rebuild stocks of fish, or achieve measurable or significant improvements in the conservation and management of the fishery. Under this authority, the Secretary of Commerce may buy back vessels and/or fishing permits in order to obtain the maximum sustained reduction in fishing capacity at the least cost and in a minimum period of time.

The capacity reduction program must be consistent with any state and federal fishery management plans in place for that fishery. Funding for such programs is authorized under Section 312(c) of the Magnuson-Stevens Act and allows NOAA Fisheries to obtain funding under authorization of the Saltonstall-Kennedy Act, through specific appropriations, from industry fee systems, and from public, private, or non-profit sources.

Please see the links below for general information and the program links for specific details.

- [Magnuson-Stevens Act Buyback Framework Final Rule - 10/08/10](#)
- [Magnuson-Stevens Act Buyback Framework Proposed Rule - 06/14/10](#)
- [Framework Interim Final Rule - 5/18/2000](#)
- [Privacy Act Statement](#)

R2, 25

LEVEL OF COMPLIANCE

D3. Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment.

LOW	There are no management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment.
MEDIUM	There are management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. However it is not science based.
HIGH	There are management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. Measures are based on scientific information.

Determination: The IFMP and menhaden science programs recognise and incorporate a wide range of factors in relation to non-target species, the broader ecosystem, and the physical environment. The ASMFC has committed to the development of ecologically-based reference points, to better reflect menhaden's role as a prey species.

Non-target species

Numerous past studies have shown that there is little or no bycatch in the menhaden purse seine fishery. Some states restrict bycatch to 1% or less of the total catch on a vessel by regulation. The Virginia Institute of Marine Science studied bycatch levels of finfish, turtles, and marine mammals in the Atlantic menhaden fishery. Results from that study indicated that bycatch in the 1992 Atlantic menhaden reduction fishery was minimal, comprising about 0.04% by number. The maximum percentage bycatch occurred in August (0.14%) and was lowest in September (0.002%). Among important recreational species, bluefish accounted for the largest bycatch, 1,206 fish (0.0075% of the total menhaden catch). No marine mammals, sea turtles, or other protected species were killed, captured, entangled or observed during sampling.

ETP Species

The IFMP contains a substantial section detailing the relevant federal legal instruments in relation to ETP species, and their impacts and requirements in relation to the Atlantic menhaden fishery. The Endangered Species Act of 1973 (ESA) provides for the conservation of species that are endangered or

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threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The Marine Mammal Protection Act of 1972 (MMPA) requires the NMFS to develop and implement plans to reduce the impact of fisheries on specified marine mammals. 14 species fall under these laws in respect of the Atlantic menhaden fishery, including four whale species, three turtles, three seals, the harbour porpoise, and the bottlenose dolphin.

Additionally, National Marine Fisheries Service (NMFS) and ASMFC have implemented a number of mitigation factors in the event that this or other fisheries are found to interact with marine mammals in deleterious way. This includes implementing a take reduction team (TRT), which can implement time area closures, gear restrictions and other measures if the menhaden purse seine fishery is found to have increased interactions with protected marine mammals, turtles, and seabird species. To date however interactions have not been a cause of concern (*ASMFC 2017c*).

An observer program was recently required in the purse seine fishery to better evaluate interactions with sea turtles (NOAA, 2012b) but data has not been made public due to data confidentiality.

Ecosystems

Menhaden form a critical link between the lower and upper levels of the Chesapeake Bay food web, because they are a key forage species for fish such as striped bass, weakfish, and bluefish and are filter feeders, grazing on planktonic organisms such as algae and zooplankton. The stated goals of the Atlantic menhaden IFMP include:

- Protect fishery habitats and water quality in the nursery grounds to insure recruitment levels are adequate to support and maintain a healthy menhaden population.
- Improve understanding of menhaden biology, food web ecology and multispecies interactions that may bear upon predator-prey and recruitment dynamics.
- Protect and maintain the important ecological role Atlantic menhaden play along the coast.
- Improve understanding of climatic drivers of recruitment.

In addition to these, in 2015 the ASMFC committed to the development of ecologically-based reference points, to reflect menhadens role as a forage and prey species. The first meeting of the Biological Ecological Reference Points Working Group was conducted in April 2015 to initiate this process, and then formed a Biological and Ecological Reference Points workgroup (BERP). The task of this group was to work side by side with the assessment team during the 2019 benchmark process to produce reference points to explicitly address menhaden's role as forage in the ecosystem. This work is ongoing.

Physical environment

Habitat effects are generally low for purse seines, although occasional contact is known to occur and, in these cases, can cause damage to fragile ecosystems (e.g. corals), particularly when targeting benthopelagic schooling species such as menhaden. The risk of ghost fishing by lost gear is also very low for purse seines.

The IFMP also requires that member states identify and protect areas of habitat crucial to menhaden, including prohibiting the use of gears or practices which cause habitat damage or inflict bycatch mortality on menhaden.

Despite this States have an obligation to restrict purse seine activities, including the fishery for menhaden, should habitat impacts be found (amend 3). Some state have in fact done so, by elimination of purse seine in state waters or by limiting the gear/season of operation, out of an abundance of precaution (*ASMFC 2018*).

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E. IMPLEMENTATION	
LEVEL OF COMPLIANCE	
<i>E1. There should be a framework for sanctions of violation of Laws and regulations.</i>	
LOW	A framework for sanctions of violation of Laws and regulations do not efficiently exist.
MEDIUM	A framework for sanctions of violation of Laws and regulations do exist but do not work efficiently.
HIGH	A framework for sanctions of violation of Laws and regulations exists and is proven to be efficient.
<p><i>Determination: All three of the states in which the Atlantic menhaden reduction fishery is conducted have a range of potential sanctions for fishery violations defined in state legislation. Although the range of sanctions appears limited in New Jersey, the large majority of reduction menhaden is caught in Virginian waters and as such a score of high compliance is appropriate.</i></p> <p>Sanctions for violations of fishery laws and regulations are in place in each of the three states in which the reduction fishery is conducted.</p> <p>Virginia Sanctions are described in the Code of Virginia (Title 28.2, Fisheries and Habitat of the Tidal Waters) under the relevant statute. For example:</p> <ul style="list-style-type: none"> 28.2-241 – (Violation of mandatory commercial fisher registration), civil penalty of \$500. 28.2-319 – (Violation of fishing gear restrictions), “Any net, pot, or other fishing device or gear used in violation of any of the provisions of this article shall be seized and forfeited to the Commonwealth”. 28.2-313 – (Use of explosives, drugs or poisons), Class 3 misdemeanor (fine of up to \$500). <p>Sanctions include fines, seizure of equipment and catch, cancellation of fishing permits, and imprisonment.</p> <p>North Carolina North Carolina General Statutes § 113-187 (Penalties for violations of subchapter and rules) states that violations of the marine fisheries subchapter, or any rules created through it (including those put in place by the MFC for the purposes of fishery management) constitutes a Class A1 misdemeanor. A1 is the highest level of misdemeanor and can result in a range of penalties depending on the specific nature of the violation and any prior convictions. Potential penalties include unlimited fine, house arrest, community service, incarceration etc. Additional potential punishments are included elsewhere in the NC Code; for example, § 113-137 states that inspectors and law enforcement officers are permitted to confiscate fish, equipment and vessels whenever there is a violation of the law.</p> <p>New Jersey Sanctions are described in the New Jersey Statutes (Title 23, Fish and Game, Wild Birds and Animals) under the relevant section. For example:</p> <ul style="list-style-type: none"> 23:3-1 – (Fishing without a license), a fine of between \$10 and \$200 depending on the precise nature of the offence. 23:5-7 – (Landing or selling fish below minimum size), a penalty of \$20 for each fish. <p>Based on the information available to the assessment team, penalties appear to be limited to fines.</p> <p>R9-13</p>	
LEVEL OF COMPLIANCE	
<i>E2. A management system for fisheries control and enforcement should be established.</i>	
LOW	A management system for fisheries control and enforcement is not established.
MEDIUM	A management system for fisheries control and enforcement is established but do not work efficiently.
HIGH	A management system for fisheries control and enforcement is established and work efficiently.

Determination: All three of the states in which the Atlantic menhaden reduction fishery is conducted have effective law enforcement bodies in place and working to ensure compliance with fisheries legislation and rules. Additionally, the LEC of the ASMFC ensures that state law enforcement agencies are effective at enforcing the specific outcomes of IFMPs.

Each of the states in which the menhaden reduction fishery is conducted has established effective fishery control and enforcement systems.

Virginia

The Virginia Marine Police (VMP) comprise the largest division within the Virginia Marine Resources Commission, and are responsible for enforcing state and federal commercial and recreational fishery laws and regulations. To this end, they are empowered to check fishing licences, conduct vessel and catch inspections, and have full powers of arrest. Marine Police Officers also conduct search and rescue operations, enforce boating safety laws, respond to emergency calls, investigate boating accidents and criminal activity, and provide counter-terrorism patrols to Virginia military installations, shipyards, nuclear power plants, and other high-value maritime assets.

North Carolina

The enforcement of marine fishery laws and rules in NC falls under the jurisdiction of the North Carolina Marine Patrol (NCMP). Currently, the Marine Patrol has 56 officers that work in three law enforcement districts along the coast. In addition to checking commercial and recreational fishermen, officers patrol waterways, piers, and beaches in coastal areas. They also inspect seafood houses, vehicles transporting seafood, and restaurants all over the state to ensure compliance with fisheries rules. Officers use a variety of different size boats, aircraft and patrol vehicles to accomplish these tasks.

New Jersey

The Bureau of Law Enforcement, within the DEP's Division of Fish and Wildlife, constitutes New Jersey's wildlife law enforcement agency. Conservation Officers enforce wildlife laws and regulations, educating and informing the public in the process regarding the rules, laws, procedures and management practices involving the recreational and commercial uses of fish and wildlife resources to ensure the protection of the environment. Each month, Conservation Officers average about 7,000 hours of duty time, conduct 3,500 inspections and initiate 315 enforcement actions. This equates to approximately 84,000 hours, 42,000 inspections and 3,780 enforcement actions per year (although these statistics are across all wildlife law enforcement activities and are not specific to commercial fisheries).

ASMFC Law Enforcement Committee

To aid the law enforcement organisations of member states in ensuring that the outcomes of ASMFC agreements are adhered to, the Law Enforcement Committee (LEC) meets twice a year and provides additional guidance to Commission members. Guidance includes:

- Input on the efficacy and enforceability of proposed regulations in management plans. Reports on the effectiveness of existing management plans.
- Consideration of needs and opportunities for enhancing stakeholder awareness of and compliance with Commission management plans.

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7. KEY STAKEHOLDERS

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