

## 2015 Maryland FMP Report (September 2016)

### Section 18. Summer Flounder (*Paralichthys dentatus*)

The coastal stock of summer flounder peaked in 2010 and has declined slightly since then but is above the threshold. Regional abundance seems to have shifted recently.<sup>1</sup> As a result, a regional, rather than state-by-state, conservation equivalency approach was implemented for summer flounder in 2016. In general, conservation equivalency is an approach taken by a state or region that differs from the specific requirements of the FMP but is designed to achieve the same level of fishing mortality. Established state recreational harvest allocations will not be altered. All states within a region have the same size limit, possession limit, and season.<sup>2</sup> Maryland's region includes Virginia and Delaware. For this region, the minimum recreational size is 16" with a 4 fish per person per day limit.<sup>1,2</sup>

#### Fishery Management Plans (FMPs)

In 1991, the Chesapeake Bay jurisdictions adopted the Chesapeake Bay Summer Flounder Fishery Management Plan (CBSF FMP). The CBSF FMP implemented management measures to reduce fishing mortality (F) and increase the spawning stock biomass (SSB). CBSF FMP strategies and actions were based on guidelines established by the Atlantic States Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC). As the summer flounder stock improved, the Chesapeake Bay jurisdictions developed Amendment 1 to the CBSF FMP in 1997. This amendment adopted all future reference points and quotas determined by the ASMFC and MAFMC. Jurisdictions continue to implement commercial and recreational management measures as needed to meet these requirements. The CBSF FMP Amendment 1 also implemented a system of individual fishing quota (IFQ) permits for the commercial fishery. The CBSF FMP was reviewed in 2014. The Plan Review Team concluded that the CBSF FMP and amendment were appropriate for managing the resource and recommended another review after the development of a comprehensive MAFMC/ASMFC amendment in 2018.

In the late 1980s, the Atlantic coast summer flounder stock was overfished and depleted. A coastal Fishery Management Plan for Summer Flounder was initially developed in 1982 by the ASMFC. The coastwide plan established a 14" minimum size and specified trawl net mesh size for fishing in state waters ( $\leq 3$  miles from shore). The MAFMC developed a complementary Fishery Management Plan for the Summer Flounder Fishery in 1988 to govern the federal waters ( $> 3$  miles from shore). The MAFMC's FMP required fishermen to abide by the more conservative of state or federal requirements. Summer flounder management was consolidated into a joint ASMFC and MAFMC fisheries management plan.

From 1991 to 1995, MAFMC adopted seven amendments to adjust summer flounder management actions. ASMFC and MAFMC adopted amendments 8 and 9 to incorporate scup and black sea bass, respectively, into the summer flounder FMP. Between 1997 and 2007 ASMFC adopted two amendments (10 and 13) and 8 addenda (III, IV, VIII, and XV-XIX) to modify summer flounder management. In that same time period, MAFMC adopted five amendments (10-13, 15, 16, and 19) and five frameworks (1, 2, and 5-7) to modify summer flounder management. ASMFC adopted Addendum XXV in 2014 to implement regional conservation equivalency for one year (2014). Addendum XXVI (2015) was needed to extend the regional management approach into 2015, and addendum XXVI (2016) extended the regional management approach until 2017.

In 2014, the MAFMC began a comprehensive strategic planning process to reevaluate the management of summer flounder that will ultimately result in the development of a new amendment (currently scheduled for implementation in 2018). During 2015, the MAFMC conducted meetings and a special workshop to develop new goals and objectives. During 2016, the working group will be developing a range of management alternatives and a draft Environmental Impact Statement for consideration.

## Stock Status

Summer flounder inhabit coastal waters from the North Carolina/South Carolina border north to the US/Canadian border and are managed as a single stock. A benchmark stock assessment was completed in 2013<sup>3</sup> with an update to the assessment in 2015.<sup>4</sup> Based on the 2015 update (data through 2014), the summer flounder stock is not overfished but overfishing is occurring. The 2015 update provides evidence that fishing mortality (F) has been underestimated and spawning stock biomass (SSB) has been overestimated since 2011. The updated biological reference points are a F threshold =  $F_{MSY\ proxy} = F_{35\%} = 0.309$  and a biomass target  $SSB_{MSY\ proxy} = SSB_{35\%} = 62,394\ mt = 137.555\ million\ lbs.$  The current  $F = 0.359$  and the  $SSB = 88.9\ million\ lbs.$  As a result of this finding, the commercial quota decreased to 8.12 million pounds in 2016.

## Management Measures

The National Marine Fisheries Service (NMFS), in conjunction with MAFMC, determine coastwide annual catch limits (ACL), commercial quota, and recreational harvest limit (RHL). Commercial coastwide quota is allocated among states based on their historic proportion of landings. Maryland is allocated 2.04% of the coastwide commercial quota and 2.9% of the RHL.<sup>5</sup> States can implement conservation equivalency that may result in different regulatory combinations from state-to-state as long as they stay within the ACL. Commercial and recreational quota overages are deducted from the following year's quota.

Maryland implements catch share management to equitably distribute the commercial quota among harvesters in Atlantic coastal waters, coastal bays and tributaries, Chesapeake Bay (primarily bycatch) and the Potomac River. The catch share system assigns a specific individual fishing quota (IFQ) to each fisherman which allows them to manage their business for best economic yield. Commercial hook and line harvest is managed with a 16" minimum length and all other gears have a 14" minimum length. Commercial fishermen without an IFQ are restricted to 100 lbs. per person per day in coastal waters and 50

lbs. per person per day in tidal waters (Chesapeake Bay). The commercial season is year round. PRFC manages the Potomac River with a 14" minimum size. Net design and mesh size are also regulated.

The Maryland recreational summer flounder fishery was open year round in 2015. Minimum length was 16" and harvest was limited to 4 fish per person per day. PRFC manages the Potomac River recreational harvest with a 16" minimum size limit and 4 fish per person per day limit.

Maryland monitors summer flounder abundance, size, and age with an annual Coastal Bays trawl survey, beach seine survey, and commercial trawl landings from near-shore Atlantic waters. The Maryland Department of Natural Resources (MDNR) initiated the Maryland Volunteer Angler Summer Flounder Survey (MVASFS) in 2005. The results from these four surveys are used by ASMFC, MAFMC, and Maryland to develop regulations for the following year's summer flounder fisheries.

## The Fisheries

Maryland's 2015 commercial fishery harvested 186,360 pounds (DNR data). Ninety-six percent of the total was reported as harvested by otter trawl. The 2015 Maryland commercial quota was 225,716 pounds. Recreational landings of summer flounder were 44,437 fish with a combined weight of 103,613 pounds in 2015.<sup>7</sup>

Figure 1. Maryland commercial summer flounder harvest in pounds, 1958-2015.

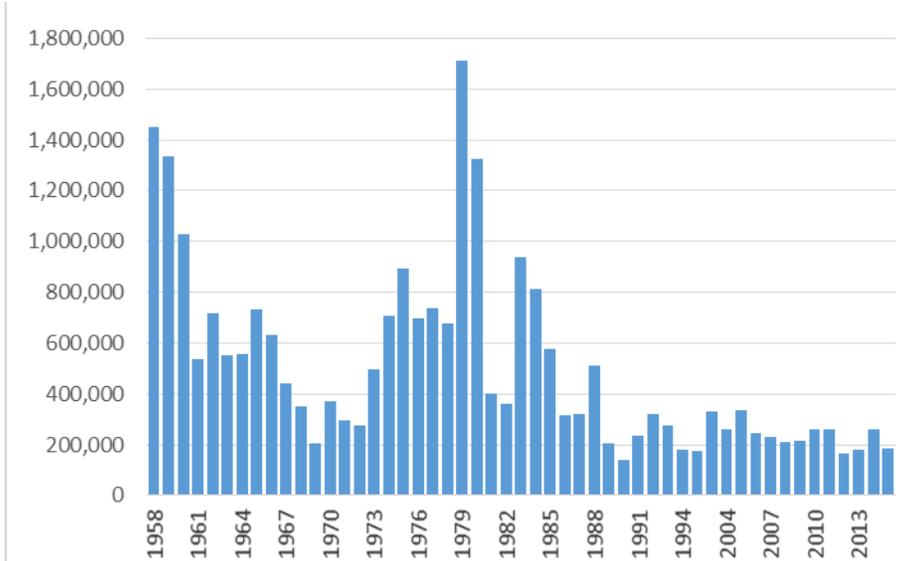
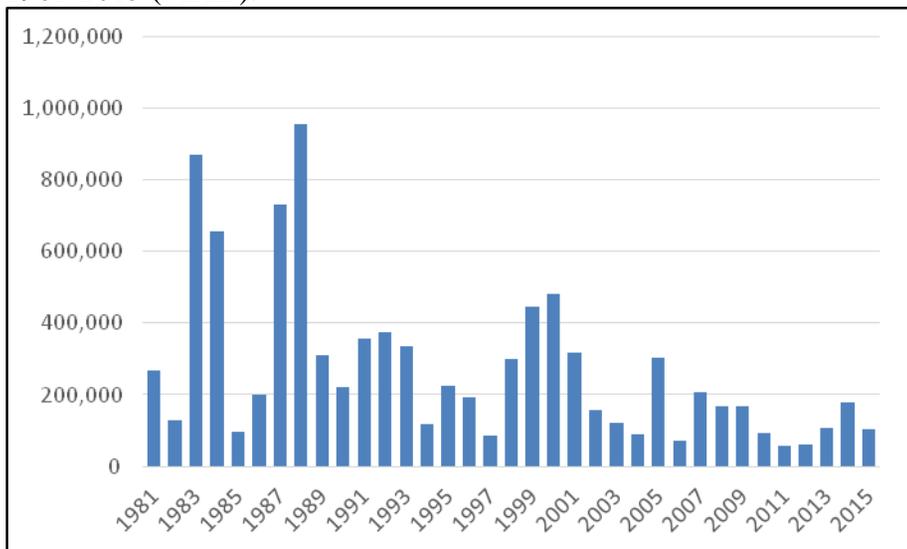


Figure 2. Estimated recreational summer flounder harvest in pounds, 1981-2015 (MRIP).



### Issues/Concerns

Some commercial harvesters from the lower mid-Atlantic are beginning to travel northward to catch summer flounder. For example, harvesters from North Carolina will travel by boat to New Jersey. The commercial sector has requested permission to land summer flounder at a port located where they are fishing rather than traveling back to their home port. A potential consequence of such a change would be a reallocation of state commercial quotas.

A poleward expansion of summer flounder distribution has been evident since 2009.<sup>8</sup> The poleward expansion of summer flounder may be a response to warming water temperature<sup>9</sup> or to fishery regulations that increased the proportion of larger summer flounder. Larger fish are found in cooler northern waters resulting in the northward shift of the species' center of biomass.<sup>10</sup> As a result of changes in distribution and concerns about management, the ASMFC and MAFMC will take the change under consideration during their comprehensive review of the summer flounder management framework.

## References

- <sup>1</sup> Atlantic States Marine Fisheries Commission. 2015. Addendum XXVI to the Summer Flounder, Scup, Black Sea Bass Fishery Management Plan. Arlington, Virginia.
- <sup>2</sup> Atlantic States Marine Fisheries Commission. (2014a). Addendum XXV to the summer flounder, scup, black sea bass fishery management plan; Summer flounder and black sea bass recreational management in 2014. Arlington, Virginia: Atlantic States Marine Fisheries Commission.
- <sup>3</sup> Northeast Fisheries Science Center. (2013). 57th northeast regional stock assessment workshop (57th SAW) assessment report (No. Ref Doc. 13-16) (p. 967). Woods Hole, MA: U.S. Department of Commerce, Northeast Fisheries Science Center. Retrieved from <http://www.nefsc.noaa.gov/nefsc/publications/>
- <sup>4</sup> National Marine Fisheries Service. 2015. Stock Assessment Update of Summer Flounder for 2015. Northeast Fisheries Science Center. Woods Hole, MA. June 29, 2015.
- <sup>5</sup> Doctor, S. 2016. Maryland's 2015 summer flounder (*Paralichthys dentatus*) compliance report to the Atlantic States Marine Fisheries Commission. Maryland Department of Natural Resources. Annapolis, Maryland.
- <sup>6</sup> Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. <http://www.st.nmfs.noaa.gov/index>. Accessed March 23, 2016.
- <sup>7</sup> Personal communication from the NOAA Fisheries Service, Northeast Regional Office, Fisheries Statistics Office. Accessed Sept 27, 2016.. [http://www.nero.noaa.gov/ro/fso/reports/reports\\_frame.htm](http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm)
- <sup>8</sup> Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. (2014). Fisheries of the Northeastern United States; Summer Flounder, Scup, and Black Sea Bass Fisheries; 2014 Summer Flounder Specifications; 2015 Summer Flounder, Scup, and Black Sea Bass Specifications; 2014 Research Set-Aside Projects (Federal Register No. 79(61)).
- <sup>9</sup> Nye, J. A., Link, J. S., Hare, J. A., & Overholtz, W. J. (2009). Changing spatial distribution of fish stocks in relation to climate and population size on the Northeast United States continental shelf. *Marine Ecology Progress Series*, 393, 111–129. doi:10.3354/meps08220
- <sup>10</sup> Bell, R. J., Hare, J. A., Manderson, J. P., & Richardson, D. E. (2014). Externally driven changes in the abundance of summer and winter flounder. *ICES Journal of Marine Science*, 71(5). doi:10.1093/icesjms/fsu069



<b>Amendment #1 to the 1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2016)</b>			
<b>Strategy</b>	<b>Action</b>	<b>Date</b>	<b>Comments</b>
		2013	limits are adjusted for over/under harvest. A series of combined pound/day and pound/species (Atlantic croaker, black sea bass, scup, squid, scallop, and Atlantic mackerel) restrictions have been implemented.
		2014-2015	MD's commercial hook & line minimum size was reduced from 16" to 14". Min.size for other gear types is 14". PRFC and VA minimum size is 14".
	1.1b) The jurisdictions will implement recreational seasons, creel limits and minimum size limits to meet the annual coastal recreational harvest limits recommended by the MAFMC/ASMFC.	2001	ASMFC implements coastwide system for conservation equivalency.
		2003	ASMFC sets State-specific recreational harvest targets.
		2005	ASMFC established a program to allow the recreational summer flounder coastwide allocations to be subdivided into regions.
		2014	Regional management was implemented in place of conservation equivalency. MD, DE, and VA are being managed as a single region with all jurisdictions having the same regulations: 16" minimum length and 4 fish/person/day creel.
		<b>2015</b>	<b>Regional management was continued for 2015</b>
	1.1c) Maryland and Virginia will maintain the traditional commercial fishery by requiring a special landings permit for the Atlantic commercial summer flounder fishery. The jurisdictions will develop, define and adopt criteria to determine eligibility for participation in the fishery.	1998	MD has implemented a summer flounder catch share system. The catch share allocation equitably distributes the quota among harvesters based on past harvest. IFQ allows fishermen to manage harvest for best economic yield.
		2003	
		Continue	
		2005	
		On-going	VA issues permits for vessels and dealers.

**1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2015)**

<b>Strategy</b>	<b>Action</b>	<b>Date</b>	<b>Comments</b>
1.1) Maryland, Virginia and the PRFC will propose changes in the minimum size regulations, creel limits and seasons in the recreational fishery to conform to guidelines set by MAFMC. Maryland and Virginia will comply with commercial quotas, mesh sizes and other commercial restrictions enacted by MAFMC. These recommendations are intended to provide greater spawning stock biomass from each flounder year-class and provide a greater yield-per-recruit.	1.1a) Maryland, the PRFC and Virginia will propose an increase in their minimum size limit for recreationally caught flounder from 13 inches to 14 inches.	1992	Initiated increasing minimum size 13” to 14” ASMFC revised overfishing definition.
		1998	See Amendment 1, Strategy 1.1, Action 1.1b
	1.1b) Maryland, Virginia and the PRFC will propose creel limits and seasonal restrictions in compliance with MAFMC recommendations. A six fish creel limit will be proposed as one measure to meet these recommendations. A recreational fishing season extending from May 15 – Sept. 30 may also be required to reduce fishing mortality. Virginia will continue to enforce its ten fish per day limit until such time as MAFMC recommendations can be implemented.	1998	See Amendment 1, Strategy 1.1, Action 1.1b
	1.1c) Commercial size limits will remain at 13” for Virginia and Maryland in conformance with MAFMC recommendations. The PRFC will propose a 14” minimum commercial size limit for its commercial flounder fisheries to provide parity with the recreational fishery. A 5.5 inch diamond or 6 inch square minimum cod end mesh size will be implemented in all directed flounder trawl fisheries.	1998	See Amendment 1, Strategy 1.1, Action 1.1a
	1.1d) Commercial fisheries will be subject to quotas set by MAFMC and	1993	ASMFC State allocations changed.

**1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2015)**

Strategy	Action	Date	Comments
	administered by the states. All flounder landed by a vessel registered in a state will be counted towards that state's quota, without regard to the actual fishing location. Commercial fisheries in each state will be closed when that state's quota is reached. The PRFC will propose a moratorium on its commercial flounder fisheries from January through June, inclusive, to compliment the seasonal closure proposed for the recreational fishery, in addition to conforming to MAFMC quota closures.	<p>1995</p> <p>1998</p> <p>2012</p> <p>2013</p> <p><b>2014 Continue</b></p>	<p>ASMFC capped coastwide quota &amp; adjusted stock rebuilding schedule.</p> <p>ASMFC revised overfishing definition. See Amendment #1, Strategy 1.1, Action 1.1a</p> <p>MD receives 2.04% of the coastwide commercial TAL. A portion of MD's TAL is allocated to PRFC. VA is allocated 21.3% of the coastwide quota.</p> <p>A coastwide benchmark stock assessment was completed in 2013 (with data through 2012). Updated BRPs were adopted. The coastal summer flounder stock is not overfished and overfishing is not occurring.</p> <p><b>The MAFMC began a major review of the summer flounder component of their management framework</b></p>
1.2) Management agencies will continue to promote the implementation of minimum mesh size in the directed flounder trawl fisheries sufficient to allow escapement of immature female flounder. Management agencies will urge the Mid-Atlantic Fisheries Management Council to enact a mesh size compatible with these management goals in the directed flounder trawl fisheries to complement the mesh size	<p>1.2a) Virginia and Maryland will implement a 5.5 inch diamond or 6 inch square minimum cod end mesh size in all directed flounder trawl fisheries to allow escapement of immature female flounder. Virginia and the PRFC will continue their bans on trawling in state waters.</p> <p>1.2b) Virginia and Maryland will work with the Mid-Atlantic Fisheries Management Council to adopt a 5.5 inch diamond or 6 inch square minimum cod end mesh size for the EEZ flounder trawl fishery consistent with the objectives of the Baywide Plan and MAFMC's</p>	<p>On-going</p> <p><b>2014 Continue</b></p>	<p>Mesh size restrictions have been implemented.</p> <p>Mesh size restrictions have been implemented.</p> <p><b>MAFMC has begun a major review of their management framework for summer flounder.</b></p>

**1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2015)**

Strategy	Action	Date	Comments
requirements enacted through the Baywide Plan.	recommendations for conservation of the resource.		
1.3) Virginia, Maryland and the Potomac River Fisheries Commission will investigate the incidental bycatch of small flounder in non-directed fisheries and participate in coastal deliberations to protect small flounder in other coastal states.	1.3a) Maryland will collect information from its pound net and ocean trawl fisheries to develop management strategies for reducing the non-directed bycatch of small flounder and other species. Options for consideration include minimum mesh sizes, season and area restrictions, culling practices, escape panels and fishing efficiency devices.	On-going	MD collects summer flounder abundance, size, and age data from commercial trawlers fishing near-shore Atlantic waters.
	1.3b) Virginia will continue to monitor the species composition and biological characteristics of bait harvested in its pound net fishery. The VMRC will take action, as needed, to reduce the incidental bycatch of small flounder in the bait fishery.	On-going	Monitoring of pound net bait fish harvest is not required.
	1.3c) Maryland, PRFC, and Virginia will work through the Mid-Atlantic Fisheries Management Council and the Atlantic States Marine Fisheries Commission to encourage protection of immature flounder.	On-going	Immature flounder are conserved via gear and harvest restrictions.
2.1) Maryland, Virginia and the Potomac River Fisheries Commission will continue to support stock identification research to determine the extent of stock mixing in the Chesapeake Bay flounder population.	2.1) The jurisdictions will continue to support stock identification research, particularly stock composition tagging studies being conducted at Virginia's Institute of Marine Science (VIMS) and the University of Maryland. Coordinated studies on the relative contribution of various estuaries, including the Chesapeake Bay, to the coastal flounder	1995 On-going	VIMS and the VMRC cooperatively support the Virginia Game Fish Tagging Program. The tagging program trains and maintains an experienced group of volunteer recreational anglers who tag and release the fish they catch. More information is available at: <a href="http://www.vims.edu/research/units/centerspartners/map/recfish/index.php">http://www.vims.edu/research/units/centerspartners/map/recfish/index.php</a>
		2014	MD does not have a summer flounder tagging

<b>1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2015)</b>			
<b>Strategy</b>	<b>Action</b>	<b>Date</b>	<b>Comments</b>
	stock will be initiated.		program.  <b>Regional stock management was implemented for 2014 and continues into 2016.</b>
2.2) Virginia will continue to support stock assessment work conducted by the VMRC and index of abundance research performed by Virginia Institute of Marine Science (VIMS).	2.2) VMRC's Stock Assessment Program will continue to collect biological data (age, size, sex) from commercial catches of summer flounder. VIMS will continue to monitor abundance of juvenile flounder through its young-of-the-year and juvenile flounder survey trawl indices.	On-going	Data collection is required by ASMFC and MAFMC.
2.3) Maryland, Virginia and the Potomac River Fisheries Commission will continue to support interjurisdictional efforts to maintain a comprehensive data base on coastwide level.	2.3) Maryland, Virginia and the PRFC will continue to collect fisheries landings data on summer flounder as part of ongoing commercial fisheries statistics programs. Virginia will continue to pursue adoption and implementation of a limited and/or delayed entry program and a mandatory reporting system for commercial licensees. Maryland and Virginia will continue to supplement the Marine Recreational Fisheries Statistics Survey to obtain more detailed catch statistics at the state level. Through FISHMAP, Maryland will begin a pound net sampling project to collect information on summer flounder and other species.	On-going  2006	Data collection is required by ASMFC and MAFMC.  FISHMAP program was discontinued.
2.4) Maryland and Virginia will continue their joint and individual efforts in providing the information needed to determine the relationship	2.4) Maryland and Virginia will continue the Baywide trawl survey of estuarine finfish species and crabs to measure size, age, sex distribution, abundance and CPUE. Maryland will continue seaside	1977 On-going 1989 On-going	MD DNR conducts a summer blue crab trawl survey.  VIMS and MD DNR collaboratively conduct a winter dredge survey of blue crabs.



**1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2015)**

Strategy	Action	Date	Comments
Agreement. The achievement of the Bay commitments will lead to improved water quality and enhanced biological production.	The Agreement and documents developed pursuant to the Agreement call for: 1) Developing habitat requirements and water quality goals for various finfish species.	2014	wetlands. For more information: <a href="http://www.chesapeakebay.net/issues">http://www.chesapeakebay.net/issues</a>  The CBP has developed a Chesapeake Watershed Agreement (2014) with fisheries and habitat outcomes. Summer flounder is not a focal species.
	3.1 2) Developing and adopting basinwide nutrient reduction strategies.	1990 On-going	Chesapeake Bay Program develops, revises, and monitors goals and strategies for nutrient reduction. For more information: <a href="http://www.chesapeakebay.net/issues/issue/nutrients">http://www.chesapeakebay.net/issues/issue/nutrients</a>
	3.1 3) Developing and adopting basinwide plans for the reduction and control of toxic substances.	1990 On-going	Chesapeake Bay Program develops, revises, and monitors goals and strategies for chemical contaminants. For more information: <a href="http://www.chesapeakebay.net/issues/issue/chemical_contaminants">http://www.chesapeakebay.net/issues/issue/chemical_contaminants</a>
	3.1 4) Developing and adopting basinwide management measures for conventional pollutants entering the Bay from point and nonpoint sources.	1990 On-going	Chesapeake Bay Program develops, revises, and monitors goals and strategies for sediment, wastewater, stormwater runoff, and agriculture. For more information: <a href="http://www.chesapeakebay.net/issues/issue/sediment">http://www.chesapeakebay.net/issues/issue/sediment</a> <a href="http://www.chesapeakebay.net/issues/issue/wastewater">http://www.chesapeakebay.net/issues/issue/wastewater</a> <a href="http://www.chesapeakebay.net/issues/issue/stormwater_runoff">http://www.chesapeakebay.net/issues/issue/stormwater_runoff</a>
	3.1 5) Quantifying the impacts and identifying the sources of atmospheric inputs on the Bay system.	1990 On-going	Chesapeake Bay Program develops, revises, and monitors goals and strategies for air pollution. For more information: <a href="http://www.chesapeakebay.net/issues/issue/air_pollution">http://www.chesapeakebay.net/issues/issue/air_pollution</a>
	3.1 6) Developing management strategies to protect and restore wetlands and submerged aquatic vegetation.	1990 On-going	Chesapeake Bay Program develops, revises, and monitors goals and strategies for wetland and submerged aquatic vegetation restoration. For more information:

1991 Chesapeake Bay Summer Flounder Fishery Management Plan Implementation Table (updated 9/2015)			
Strategy	Action	Date	Comments
			<a href="http://www.chesapeakebay.net/issues/issue/wetlands">http://www.chesapeakebay.net/issues/issue/wetlands</a> <a href="http://www.chesapeakebay.net/issues/issue/bay_grasses">http://www.chesapeakebay.net/issues/issue/bay_grasses</a>
	3.1 7) Managing population growth to minimize adverse impacts to the Bay.	1990 On-going	Chesapeake Bay Program develops, revises, and monitors goals and strategies for land development. For more information: <a href="http://www.chesapeakebay.net/issues/issue/development">http://www.chesapeakebay.net/issues/issue/development</a>

### Acronyms

ASMFC – Atlantic States Marine Fisheries Commission  
 CBP – Chesapeake Bay Program  
 ChesFIMS – Chesapeake Bay Fishery-Independent Multispecies Survey  
 ChesMMAP – Chesapeake Bay Multispecies Monitoring and Assessment Program  
 CPUE – Catch per Unit Effort  
 EEZ – Exclusive Economic Zone  
 FISHMAP – Fishery Independent Sampling and Habitat Mapping  
 FMP – Fishery Management Plan  
 IFQ – Individual Fishing Quota  
 MAFMC – Mid-Atlantic Fishery Management Council  
 MD DNR – Maryland Department of Natural Resources  
 NEAMAP – Northeast Area Monitoring and Assessment Program  
 NMFS – National Marine Fisheries Service  
 PRFC – Potomac River Fisheries Commission  
 SAW – Stock Assessment Workshop  
 TAL – Total Allowable Landings  
 VAC – Code of Virginia  
 VIMS – Virginia Institute of Marine Science  
 VMRC – Virginia Marine Resource Commission