



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Shad and River Herring Management Board

FROM: Shad and River Herring Technical Committee

DATE: October 8, 2021

SUBJECT: Technical Committee Recommendations on American Shad Habitat Plan Updates

Amendment 3 to the Shad and River Herring FMP requires all states and jurisdictions to submit a habitat plan for American shad. A majority of the habitat plans were approved by the Shad and River Herring Management Board (Board) in February 2014, and it was anticipated that they would be updated every five years. The states began the process of reviewing their American shad habitat plans and making updates in 2020, however, many states encountered delays due to COVID-19. To date the Board has approved the following habitat plan updates: ME, NH, MA, RI, CT, Delaware River, MD, NC, SC, Savannah River, GA and FL.

For the October 2021 Board meeting, two additional habitat plan updates have been submitted for Board consideration from VA and DC, and the state of NY submitted a new habitat plan for the Hudson River. The updates that were made to each plan and the new plan for the Hudson River are summarized in the sections below. The TC reviewed these plans via webinar on September 27, 2021, and recommends Board approval of all three plans.

Virginia Shad Habitat Plan Update

The scope of this report and its updates are limited to the three primary tributaries of the Chesapeake Bay within Virginia (James, York, and Rappahannock rivers). This 2021 report includes additional information or progress on existing threats recorded within the 2014 report, but also includes documentation of additional threats considered to impact American Shad habitat including:

In river construction and blockage to migration

- In-river construction projects such as bridge and tunnel construction and maintenance, dredging, and others, have the potential for disruption of American Shad migration from both direct (e.g., acoustic interference) and indirect (e.g., habitat alteration) factors.
- This threat will be addressed through the enforcement of time of year restrictions on in-water development and case-by-case consideration of appropriate mitigation measures for individual projects

Agricultural/Industrial Water Intakes and Discharge

- The surface waters used by American Shad are subject to significant withdrawals, with the largest volumes removed occurring in the waters surrounding Richmond, Hampton Roads, and Washington D.C.
- Recommended actions in the plan to address this threat include developing a better understanding of the amount of water intakes for agriculture, particularly in tidal streams and rivers that support American Shad spawning and nursery grounds, as the effects (e.g., temperature and chemical differences) of discharge in non-consumptive water withdrawals on American Shad (particularly on early life history stages) is unknown.

District of Columbia Shad Habitat Plan Update

The updated plan included information on dredging projects within the District and invasive species monitoring since the last plan submission.

- Since the previous plan the dredging/channelization project associated with the runway extension at Reagan National Airport has been completed. There are no known channelization or dredging projects located within the District of Columbia at this time.
- The Department of Energy and Environment has an ongoing study examining stomach contents of the invasive blue and flathead catfish. To date, more than 1000 blue and flathead catfish digestive tracts have been examined with no American shad observed. The opportunistic nature of these catfish still poses a potential impact to American shad populations within the District of Columbia.

Hudson River Shad Habitat Plan

This is a new plan being submitted by the state of New York. The plan details the historically and currently available American shad spawning and nursery habitat within the tidally influenced portion of the Hudson River, current threats to these habitats, and ongoing projects geared toward better understanding and mitigating the impacts of these threats.

Habitat Assessment

- American shad currently have access to 91% of historical mainstem Hudson River habitat but conversion of habitat during the dredging and channelization of the upper portion of the estuary from preferred habitat to habitats not preferred by shad has been significant.

Threats Assessment

- The Plan identifies threats to American shad spawning and nursery habitat including:
 - Barriers to migration
 - Migration barriers represent a relatively minor threat to shad habitat availability as the Hudson stock has lost access to just 9% of historic habitat
 - Water Withdrawals

- Modeling efforts have shown that impingement and entrainment mortality of American shad at various power generating facilities have resulted in year class reductions ranging from 16 to 52% during the period of 1974 to 1997
- Anthropogenic Habitat Changes
 - Dredging/channelization of the mainstem Hudson River and adjacent land use changes over the past century have resulted in the change and degradation of preferred habitat used by American shad including the loss of 57% of the intertidal shallow water habitat (1,821 hectares) found north of the City of Hudson (km 190) during the middle of the 19th century.
- Climate Change
 - The Hudson River stock will be vulnerable to climate change due, in part, to changes in water temperatures, water quality, and lost nursery habitat as storm intensity and frequency carry sediments that hinders the growth of submerged aquatic vegetation
- Invasive Species
 - Over the past century invasive species have entered the Hudson River that threaten the American shad recruitment through predation from invasive fish species and loss of nursery habitat as a result of invasive plant species such as water chestnut

Habitat Restoration Programs

- Within the Hudson River system there are significant and ongoing efforts to understand and reduce the impacts of threats to American shad and shad spawning and nursery habitats identified in the Plan
- Restoration efforts include:
 - The removal of 9 dams within the Hudson River estuary since 2016
 - Managing water intakes to reduce entrainment and impingement mortality of shad eggs and larval American shad
 - Restoring vegetated shallow water and intertidal habitats including a side channel restoration project completed in July 2018 at Gay's Point (km 196), near Coxsackie, NY
 - Invasive species monitoring and management
 - Monitoring climate change impacts to the Hudson River and American Shad to identify and implement opportunities to adaptively manage and minimize adverse impact