

Alosa sapidissima (American Shad)

Priority 1 Species of Greatest Conservation Need (SGCN)

Class: *Actinopterygii* (Ray-finned Fishes)

Order: *Clupeiformes* (Herrings)

Family: *Clupeidae* (Herrings)

General comments:

General info: <http://www.asmfc.org/species/shad-river-herring>

No Species Conservation Range Maps Available for American Shad

SGCN Priority Ranking - Designation Criteria:

Risk of Extirpation: NA

State Special Concern or NMFS Species of Concern: NA

Recent Significant Declines:

American Shad is currently undergoing steep population declines, which has already led to, or if unchecked is likely to lead to, local extinction and/or range contraction.

Notes:

Understudied taxa: http://www.asmfc.org/uploads/file/Amendment3_FINALshad.pdf

Regional Endemic: NA

High Regional Conservation Priority:

Atlantic States Marine Fisheries Commission Stock Assessments:

Status: Decreasing, Status Comment: Taken in total, American shad stocks do not appear to be recovering. Current restoration actions need to be reviewed and new ones need to be identified and applied. These include fishing rates, dam passage (and survival there from), stocking, and habitat

Reference: Atlantic States Marine Fisheries Commission. 2007. Stock Assessment Report No. 07-01, Terms of Reference & Advisory Report to the American Shad Stock Assessment Peer Review. Available from: <http://www.asmfc.org/fisheries-science/stock-assessment>

High Climate Change Vulnerability: NA

Understudied rare taxa:

Recently documented or poorly surveyed rare species for which risk of extirpation is potentially high (e.g. few known occurrences) but insufficient data exist to conclusively assess distribution and status. *criteria only qualifies for Priority 3 level SGCN*

Notes:

Understudied taxa: http://www.asmfc.org/uploads/file/Amendment3_FINALshad.pdf

Historical: NA

Culturally Significant:

Species identified as both biologically vulnerable and culturally significant by Maine's tribes.

Habitats Assigned to American Shad:

Formation Name	Freshwater Aquatic
Macrogroup Name	Rivers and Streams
Habitat System Name: Large River	**Primary Habitat** Notes: spawning habitat, larval stage, juvenile age-0
Habitat System Name: Medium River	**Primary Habitat** Notes: spawning habitat, larval stage, juvenile age-0

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Formation Name **Intertidal**

Macrogroup Name **Intertidal Water Column**

Habitat System Name: Confined Channel ****Primary Habitat**** **Notes:** *staging for spawning, larval and juvenile age-0 development*

Habitat System Name: Embayment **Notes:** *juvenile*

Formation Name **Subtidal**

Macrogroup Name **Subtidal Pelagic (Water Column)**

Habitat System Name: Confined Channel ****Primary Habitat**** **Notes:** *staging for spawning, larval and juvenile age-0 development*

Habitat System Name: Nearshore ****Primary Habitat**** **Notes:** *migration and age 1-4 development, migration pattern for all age annual migration for Maine and other Atlantic states populations.*

Habitat System Name: Offshore **Notes:** *migration and age 1-4 development, migration pattern for all age annual migration for Maine and other Atlantic states populations.*

Stressors Assigned to American Shad:

Stressor Priority Level based on Severity and Actionability		Moderate Severity	High Severity
	Highly Actionable	Medium-High	High
	Moderately Actionable	Medium	Medium-High
	Actionable with Difficulty	Low	Low

IUCN Level 1 Threat **Climate Change and Severe Weather**

IUCN Level 2 Threat: Storms and Flooding

Severity: Severe **Actionability:** Moderately actionable

Notes: Increased flooding during the spring can limit upstream swimming ability. Preserving or improving stream buffers could help mitigate high velocity runoff.

IUCN Level 1 Threat **Human Intrusions and Disturbance**

IUCN Level 2 Threat: Recreational Activities

Severity: Moderate Severity **Actionability:** Highly actionable

Notes: Extraction and mortality rates differ widely among Maine runs. Implementing voluntary conservation measures, such as continuous escapement or not fishing the run during the first week, can help ensure sustainable harvests

IUCN Level 1 Threat **Natural Systems Modifications**

IUCN Level 2 Threat: Dams and Water Management-Use

Severity: Severe **Actionability:** Moderately actionable

Notes: Dams can completely block access to spawning grounds. While fishways can provide upstream access around dams, they may not pass all species effectively and/or may fall into disrepair without active maintenance. Actionability is moderate - proactive dam removal happens infrequently (not a high likelihood or certainty), but new small dam construction is slowing. Spatial extent is entire state.

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IUCN Level 1 Threat Transportation and Service Corridors

IUCN Level 2 Threat: Roads and Railroads

Severity: Severe **Actionability:** Moderately actionable

Notes: The majority of the current road/railroad crossings pose some passage problems because they are undersized or hanging during at least some portion of the tide or seasonal flow regime. 'Actionability' is moderate because culverts must be replaced and can be constructed to allow passage, but sometimes are not. Also must wait until the culvert is in need of replacement in most cases which can be 20-30 years. Likelihood is moderate because construction can allow passage. Certainty is low. Spatial extent is high within spawning range.

IUCN Level 1 Threat Biological Resource Use

IUCN Level 2 Threat: Fishing and Harvesting of Aquatic Resources

Severity: Moderate Severity **Actionability:** Moderately actionable

Notes: Extraction and mortality rates differ widely among Maine runs. Implementing voluntary conservation measures, such as continuous escapement or not fishing the run during the first week, can help ensure sustainable harvests

IUCN Level 1 Threat Pollution

IUCN Level 2 Threat: Agricultural and Forestry Effluents

Severity: Moderate Severity **Actionability:** Moderately actionable

Notes: The specific causes of impact are increased non-point source pollution (heavy metals and nutrient inputs), increased turbidity, and lower dissolved oxygen.

IUCN Level 2 Threat: Domestic and Urban Waste Water

Severity: Moderate Severity **Actionability:** Moderately actionable

Notes: The specific causes of impact are increased non-point source pollution (heavy metals and nutrient inputs), increased turbidity, and lower dissolved oxygen.

IUCN Level 1 Threat Residential and Commercial Development

IUCN Level 2 Threat: Housing and Urban Areas

Severity: Moderate Severity **Actionability:** Moderately actionable

Notes: Residential and urban development can lead to stressed runs. The specific causes of impact are increased non-point source pollution (heavy metals and nutrient inputs), increased turbidity, water withdrawals, disturbance of stream corridor and tree canopy over stream. Likelihood is high and increasing (high certainty), current spatial extent is Southern Maine, but expanding along coast, so actionability is moderate, i.e. the threat can be minimized in newly developing areas.

IUCN Level 1 Threat Climate Change and Severe Weather

IUCN Level 2 Threat: Droughts

Severity: Moderate Severity **Actionability:** Actionable with difficulty

Notes: Changes in annual water trends can affect water trends/discharge during important phases in the life cycle (spawning, rearing, outmigration). Recent NOAA research has shown that droughts and flooding during summer/fall can impact spring flow regimes.

IUCN Level 2 Threat: Habitat Shifting or Alteration

Severity: Moderate Severity **Actionability:** Actionable with difficulty

Notes: Sea level rise could reduce or relocate spawning habitat and truncate or shift species natural range. Likelihood of adjusting to accommodate is low.

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None. *Only species specific conservation actions that address high (red) or medium-high (orange) priority stressors are summarized here.*

Conservation Actions Associated with the Diadromous Fish Guild:

Conservation Action **Category:** Public Outreach **Biological Priority:** moderate **Type:** on-going
Continue to work with the fishing industry to develop gear modifications that reduce of bycatch of diadromous fishes

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action **Category:** Public Outreach **Biological Priority:** high **Type:** on-going
Conduct education to increase awareness of the importance of these species to maintaining productive ecosystem functioning.

Stressor(s) Addressed By This Conservation Action

Lack of knowledge, Fishing and Harvesting of Aquatic Resources

Conservation Action **Category:** Research **Biological Priority:** high **Type:** on-going
Improve understanding of species distribution especially in regards to ecosystem interactions, predator-prey relationships, and prey buffering concepts

Stressor(s) Addressed By This Conservation Action

Lack of knowledge

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Conservation Action	Category: Habitat Management	Biological Priority: high	Type: on-going
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Encourage improved municipal planning for siting for new or retrofitting development, taking into account future environmental change, to improve connectivity for diadromous fish passage

Stressor(s) Addressed By This Conservation Action

Industrial and Military Effluents, Domestic and Urban Waste Water, Commercial and Industrial Areas , Housing and Urban Areas

Conservation Action	Category: Survey and Monitoring	Biological Priority: high	Type: on-going
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Ground-truth mapped habitat and compare to historical maps to monitor change over time, may require updating mapping plans to map more frequently

Stressor(s) Addressed By This Conservation Action

Lack of knowledge

Conservation Action	Category: Survey and Monitoring	Biological Priority: critical	Type: on-going
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Monitor population stock status through surveys and sampling programs

Stressor(s) Addressed By This Conservation Action

Other Threat

Conservation Action	Category: Research	Biological Priority: critical	Type: on-going
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Determine the location and timing of critical habitat use (for endangered species) and important habitat use for diadromous fishes at different life history stages

Stressor(s) Addressed By This Conservation Action

Lack of knowledge

Conservation Action	Category: Research	Biological Priority: high	Type: new
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Investigate methods to reduce incidental bycatch in commercial and recreational fisheries

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action	Category: Research	Biological Priority: high	Type: on-going
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Gather information to support management, including stock assessments, population genetics, population monitoring, etc.

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources, Lack of knowledge

Conservation Action	Category: Research	Biological Priority: high	Type: new
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Improve understanding of the relative roles of natural predation, fishing mortality, and climate change in stock dynamics

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources, Lack of knowledge, Problematic Native Species-Diseases, Habitat Shifting or Alteration

Conservation Action	Category: Public Outreach	Biological Priority: high	Type: on-going
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Encourage the use of more targeted fishing gear in order to reduce bycatch and habitat disturbance

Broad Taxonomic Group Conservation Actions:

Additional relevant conservation actions for this species are assigned within broader taxonomic groups in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-1.

Habitat Based Conservation Actions:

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Additional conservation actions that may benefit habitat(s) associated with this species can be found in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-15. Click on the Habitat Grouping of interest to launch a habitat based report summarizing relevant conservation actions and associated SGCN.

The Wildlife Action Plan was developed through a lengthy participatory process with state agencies, targeted conservation partners, and the general public. The Plan is non-regulatory. The species, stressors, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work programs and priorities by state agencies and partners.