Larry Hogan, Governor | Jeannie Haddaway-Riccio,

Alabama Bass (*Micropterus henshalli*) Ecological Risk Screening Summary

Joseph W. Love, October 2020
[Maryland Department of Natural Resources]

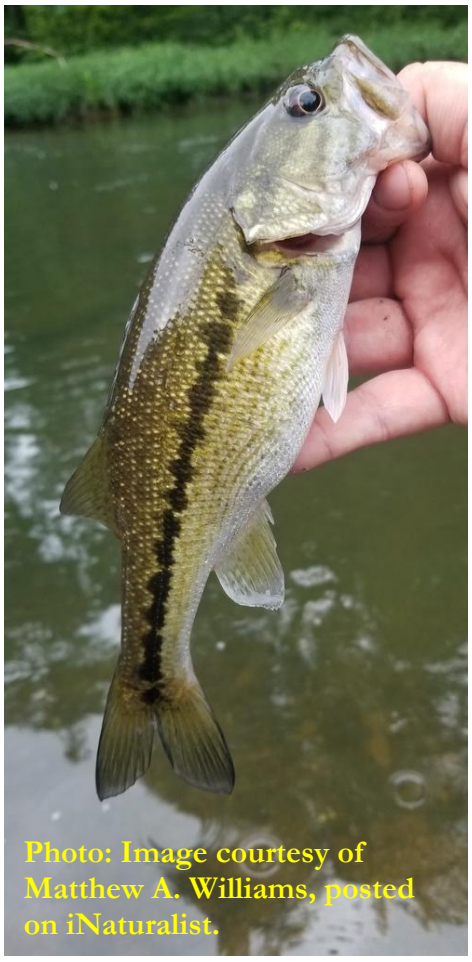


Photo: Image courtesy of Matthew A. Williams, posted on iNaturalist.

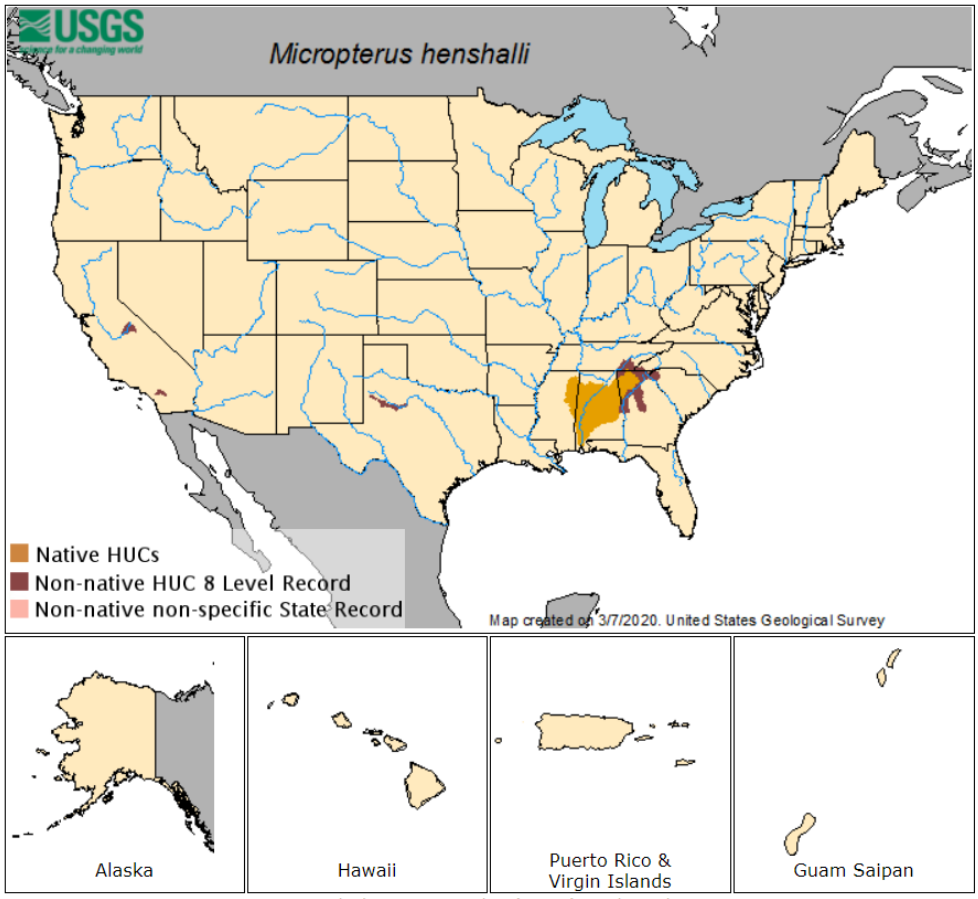
1. Background and Description

Alabama bass (*Micropterus henshalli*) is one of at least twelve recognized temperate black basses indigenous to the freshwater rivers and lakes of North America. It is an aggressive species that generally does not grow as big as largemouth bass, can rapidly become abundant when introduced into an ecosystem, competes with other black bass for food, and can genetically pollute populations of smallmouth bass (*M. dolomieu*) and largemouth bass (*M. salmoides*), as well as other species of black bass (e.g., Shoal Bass, Spotted Bass). Because of its fighting ability, anglers from black bass fishing clubs have illegally introduced Alabama bass to Georgia, North Carolina, and Virginia waters. It has been introduced by government agencies in Texas and California, and possibly abroad in South Africa. Where introduced, the species has not been eradicated, though harvest may be encouraged. Anglers have debated the merits of a control program dedicated to Alabama bass because some enjoy fishing for the species, while others recognize the problems it poses to other black bass species. Alabama bass has not been reported in Maryland but there is concern anglers could introduce the species into Maryland. Additionally, out-of-state suppliers might unwittingly sell Alabama bass, which look similar to largemouth bass, to Marylanders.

Alabama bass was a subspecies of spotted bass and was widely referred to as Alabama spotted bass. Alabama bass has a dark, blotchy lateral band from head to tail and the stripe ends in a series of blotches on the caudal peduncle. There are 27 or more scales around the caudal peduncle and black blotches along the upper back. These blotches do not touch the dorsal fin base, unlike that observed for spotted bass (Page and Burr 2011; Rider and Maceina 2015). Baker et al. (2008) noted significant differences in morphology from spotted bass and recommended it be described as its own species. Alabama bass differs from spotted bass by having a higher scale count, narrower head, smaller scale width and tooth patch. Alabama bass has 68 – 84 (usually more than 71) pored lateral line scales.

Genetic evidence has also shown that it is not closely related to spotted bass (*M. punctulatus*)(Kassler et al. 2002). Instead, it is more closely related to redeye bass (*M. coosae*)(Bagley et al. 2011) and Bartram's or shoal bass (*M. cataractae*)(Taylor et al. 2019). Alabama bass can be distinguished from the widespread largemouth bass (*M. salmoides*) because the jaw of Alabama bass lines up with the middle rear of the eye, whereas the jaw extends past the middle rear of the eye in largemouth bass.

2. Distribution



Hydrologic Unit Codes (HUCs) Explained
Interactive maps: Point Distribution Maps

Figure 1. Known global distribution of *Micropterus henshalli*. Locations in Mobile River basin of Alabama (orange polygon) with introduced locations noted as points. Map from U.S. Geological Survey Nonindigenous Aquatic Species database (08/04/2020).

Native Range

Alabama bass is native to the Mobile River basin of Alabama, Georgia, and Mississippi (Rider and Maceina 2015; Figure 1). Of which the Mobile River basin is comprised of the Alabama, Tallapoosa, Coosa, Cahaba, Black Warrior, and Tombigbee river drainages.

Nonnative Range

Outside the United States
Alabama bass has not been introduced outside of the United States. However, spotted bass has been introduced to South Africa and it is unknown whether this species is actually *M. punctulatus* or *M. henshalli*.

Within the United States
Alabama bass has been introduced into a restricted number of locations in the United States. In 1970, the species was reported from introduced areas in Georgia and has been collected at several locations (Hiwassee River, upper Chattahoochee River, upper Ocmulgee River, Oconee River, and Hiwassee River, and Savannah River). The species was later introduced in California (1974), where the world record was caught (5.1 kg, or 11.25 lbs) in 2017. The species was also introduced into South Carolina (1985), Texas (1996), and Tennessee (2015). When discovered in Tennessee, the species rapidly populated Parksville Lake from 2005 to 2009, when it occupied 69% of all black bass in the lake. Since 2019, the species has been reported from Lake Gaston in North Carolina and Virginia, as well as Claytor Lake, Philpott Lake, and the Martinsville Reservoir in Virginia. Because the species has only been recently reported from these areas, the distribution provided by the United States Geological Survey (Figure 1) has not been updated.

Within Maryland
This species has not been reported from Maryland.

3. Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

Describe taxonomic hierarchy according to Fricke et al. (2020) and from ITIS (2020):

Kingdom	Animalia
Phylum	Chordata
Subphylum	Vertebrata
Superclass	Actinopterygii
Class	Teleostei
Superorder	Acanthopterygii
Order	Perciformes
Family	Centrarchidae
Genus	*Micropterus*
Species	*Micropterus henshalli* (formerly *M. punctulatus henshalli*)

Size, Weight, and Age

Rider and Maceina (2015) reviewed the existing literature on age and growth of Alabama bass. The oldest ages reported were 13 and 14 years from Tallapoosa River and Allatoona Lake, respectively. However, very few old individuals were actually collected when surveying a Mobile Basin population, with fish ages 9 – 11 comprising only 0.3% of the total sample. A von Bertalanffy curve was fit to age at length data to yield lengths at infinity for three populations from the Tallapoosa, Warrior, and Coosa rivers (Rider and Maceina 2015), which are within the native range. These lengths were 531.6 millimeters, 597.4 millimeters, and 506.3 millimeters, respectively, and represent the maximum lengths expected for native populations. Alabama bass is shorter than largemouth bass across ages 1 through 5 (Maceina and Bayne 2001) and are less heavy in weight per unit of body length than spotted bass or largemouth bass. A weight:length regression for Alabama bass was reported by Dicenzo et al. (1995) as $\log_{10}$ (weight) = -5.5980 + 3.2904*$\log_{10}$(length). This equation predicts that the predicted weights for the maximum lengths noted above, were 2345 grams, 3444 grams, and 1998 grams, respectively.

Preferred Climate and Habitat

The species is native to the states of Alabama, Georgia and Mississippi, where it typically inhabits impoundments and small to large rivers (Ross 2002; Page and Burr 2011; Rider and Maceina 2015). It is found in clear, deep water habitats with rocky substrates, and is less abundant in turbid waters with sand or mud substrates or brackish waters of the Mobile-Tensaw River delta. Juveniles have been collected in sluggish, or slow current waters, but not generally ones with woody debris or vegetation where largemouth bass juveniles thrive. Instead, juvenile Alabama bass prefer gravel and cobble substrates, similar to smallmouth bass.

Biology

Spawning begins in April or mid-spring (Rider and Maceina 2015) but lasts only 22 to 45 days (Greene and Maceina 2000). Adult males build nests in littoral areas, spawn and guard fry as other members of *Micropterus*. Spawning behavior has not been reported in the primary literature but likely occurs when water temperatures reach 13 degrees Celsius in early spring. Because juveniles less than 50 days old have been observed in shallow littoral areas (Greene and Maceina 2000), it is assumed that spawning occurs in these areas. Fecundity ranges from 1,500 to 7,200 (Gilbert 1973). These estimates are lower than both spotted bass and largemouth bass.

Alabama bass are primarily piscivorous. Diets of nearly 1,400 fish examined by Shepherd and Maceina (2009) included crayfish, shad, sunfishes and crappie. Numerically, small shad (less than 70 millimeters) were most abundant in diets (68 percent) and crayfish comprised 75 percent of the total weight consumed.

Human Uses

The species provides a popular recreational sport fishery (Rider and Maceina 2015). The species is highly valued for its *catchability* along with its fighting ability. Most of the fishery involves catch-and-

release fishing, which is also the focus of tournaments that target the species. Exploitation for recreational harvest can be high in some fisheries in Alabama, but the species is not considered a typical food fish.

Diseases

Largemouth bass virus has been isolated from Alabama bass, but the disease has not been observed (Rider and Maceina 2015). Parasite loads are expected to be very similar to the more than 100 species of parasites that affect populations of largemouth bass.

Threat to Humans

There are no threats to humans.

4. Introductions

Means of Introduction

Outside the United States
Spotted bass was introduced to South Africa as a game fish and the species could have been Alabama bass.

Within the United States
Alabama bass has become a popular fishing target in some southern states owed to its rapid growth and fighting ability. It was introduced illegally by bass fishing clubs and anglers in Georgia, South Carolina, North Carolina, and Virginia. Anglers introduced the species to Chatuge Lake by transporting them from Carter Lake, a road distance of approximately 74 miles. A state agency, Texas Parks and Wildlife Department, introduced the species to Lake Alan Henry (Rider and Maceina 2015). The agency introduced Alabama bass in 1996 because biologists thought it would thrive in the new reservoir that was created in 1993.

Within Maryland
The species has not been found in Maryland.

Impacts of Introduction

Outside the United States
Impacts of introduction outside of the United States are unknown.

Within the United States
Introductions have led to deleterious impacts on endemic populations of black bass species. Hybridization between Alabama bass and Bartram's bass has been detected in the Savannah River (South Carolina), and between Alabama bass and smallmouth bass (Georgia, North Carolina)(Pierce and Van Den Avyle 1997). Hybridization has caused a loss in genetic diversity in four study

reservoirs in the upper Savannah River system, and replaced the Bartram's bass in two of the reservoirs (Bangs et al. 2017). Hybridization with smallmouth bass can lead to hybrids with more spots and fewer smallmouth bass distinguishable features. Virginia biologists have likewise reported high levels of hybridization with smallmouth bass (personal communication, Alex McCrickard, Virginia Department of Wildlife Resources). Hybridization has also been measured between Alabama bass and largemouth bass, spotted bass, cahaba bass, and shoal bass. Owed to droughts, probable illegal harvest, and hybridization with Alabama bass, shoal bass has become effectively extirpated from Alabama (pers. comm. Steve Rider, Alabama Division of Wildlife and Freshwater Fisheries, Auburn University).

Abundance of largemouth bass (Dorsey and Abney 2016) declined remarkably after the introduction of Alabama bass. Changes in abundance appear to be a result of differences in recruitment and growth, which is significantly influenced by the productivity of the environment. In Alabama reservoirs, where the species naturally co-occur, both Alabama bass and largemouth bass grow similarly until age 5 (Dicenzo et al. 1995). And generally, growth rates for Alabama bass and largemouth bass increase with productivity (Buynak et al. 1989; Dicenzo et al. 1995). In meso-oligotrophic reservoirs, though, Alabama bass spawn earlier and have young that grow faster than largemouth bass (Maceina and Bayne 2001). This can lead to greater levels of recruitment by Alabama bass, rapidly increasing abundance, and a domination of the fishery by Alabama bass in meso-oligotrophic ecosystems (Maceina and Bayne 2001). In Lake Norman (North Carolina), which is largely meso-oligotrophic, Alabama bass was first discovered in 2000. Spatial segregation of the two species occurred within about three years of the discovery, with largemouth bass more common in coves and small creeks and Alabama bass thriving in major channels (Dorsey and Abney 2016). Coves and small creeks may be more eutrophic than main channels, possibly contributing to sufficient recruitment and growth rates of largemouth bass in those areas.

Data from Dorsey and Abney (2016) indicate that the relative weight of largemouth bass declined, though not significantly so, after the introduction of Alabama bass. The shared prey resources coupled with a meso-oligotrophic environment of Lake Norman suggest that density dependent growth (Miranda and Dibble 2002) could cause size-at-age and relative weights to decline for largemouth bass.

Within Maryland

There are no documented occurrences of Alabama bass in Maryland.

5. Climate Matching

Climatch, a climate matching tool, provides an interface for comparing climate characteristics between regions. It is typically used for predicting the potential spread of introduced or invasive species in applications such as risk assessments for live animal imports. Most of the data held by Climatch comes from a global climate database consisting of information from over 9,000 weather stations around the world. Within Climatch, these weather stations are represented by blue or red dots on a map. Climatch uses the terms "Source" and "Target" to describe two regions whose climates are to be compared. When considering introduced or invasive species, the Source region is the current geographic range of the species and the Target region is the region to which the species will potentially be introduced.

Summary of Climate Matching Analysis

The Climate 6 score (Australian Bureau of Rural Sciences 2010; 16 climate variables; Euclidean Distance) for Maryland was ____0.040_____. **SHARE CLIMATCH SCORE HERE**

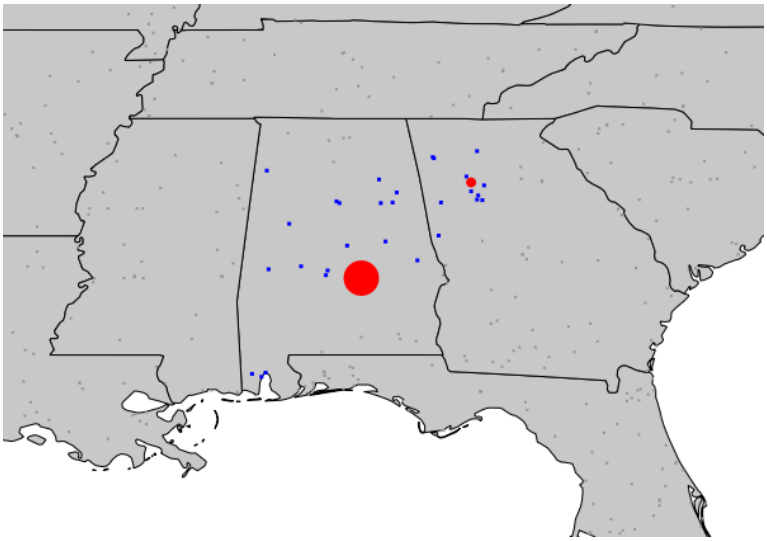


Figure 2: Climatch (Australian Bureau of Rural Science 2010) SOURCE map showing weather stations selected as source locations (red) and other locations (blue) for **ALABAMA BASS** climate matching. Source locations from GBIF.org (**06/29/2020**) GBIF Occurrence Download **GBIF LINK**.

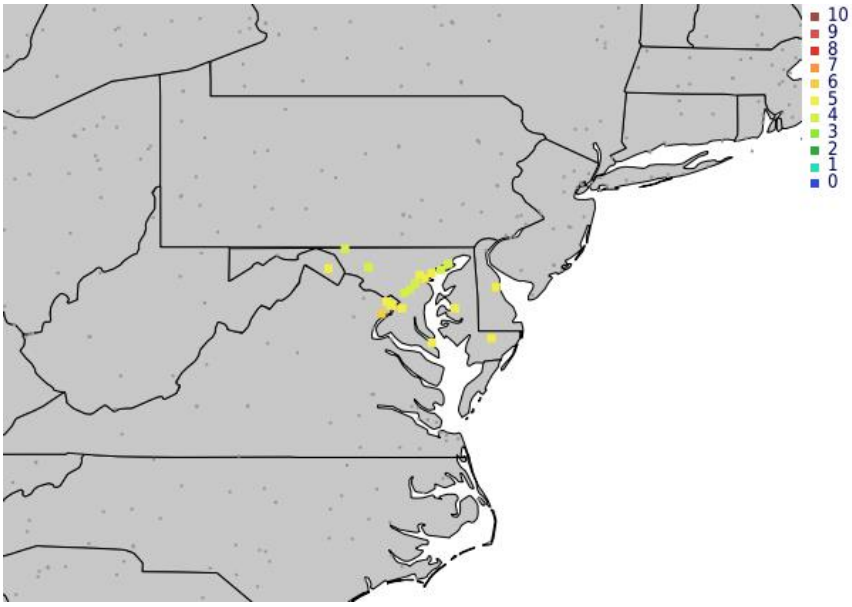


Figure 3: Climatch (Australian Bureau of Rural Science 2010) TARGET map for **ALABAMA BASS** in Maryland based on source locations reported by GBIF.org (**06/29/2020**) GBIF Occurrence Download **GBIF LINK**. 0= Lowest match, 10=Highest match."

Table 1: Climatch (Australian Bureau of Rural Science 2010) climate match scores for **ALABAMA BASS** for Maryland. Scores derived from Climatch analysis.

Climate Match	0	1	2	3	4	5	6	7	8	9	10
Count	0	0	0	0	10	14	1	0	0	0	0
Climate 6 Proportion = (Sum of Climate Score 6-10) / (Sum of Total Climate Scores) = 0.040: Medium											

Table 2: Reference to determine if Climate 6 Proportion represents a High, Medium, or Low Climate Match.

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
0.000<X<0.005	Low
0.005<X<0.103	Medium
>0.103	High

6. Risk Assessment

Summary of Risk to Maryland

Alabama bass pose a risk to existing black bass fisheries in Maryland freshwaters. If introduced, the species could become successfully established in meso-oligotrophic impoundments such as Deep Creek Lake, Prettyboy, Loch Raven, and Liberty Reservoirs and lotic, fast-flowing systems with cobble or small boulder substrates, such as the nontidal Potomac River and its major tributaries. The species could also pose a threat to some areas of the tidal Chesapeake Bay, particularly locations where smallmouth bass occur (e.g., lower Susquehanna River) and mesotrophic habitats where competition could occur for limited prey resources. Once established, Alabama bass may outcompete largemouth bass in some habitats, hybridize with smallmouth bass, and create fisheries with smaller adult bass than anglers can currently catch.

Climate matching data based upon precipitation and water temperature indicate a medium match for Maryland (Figures 2 and 3; Tables 2 and 3). The F-ISK results suggest moderate levels of invasiveness (see Appendix). The calculated F-ISK score of 19 is greater than the 15.4 that is indicative of invasive by Vilizzi et al. (2019). It is a lower score than most invasive species reviewed by Vilizzi et al. (2019). Based upon climate match and F-ISK results, the overall risk of introduction of Alabama bass to Maryland is medium and warrants concern and preventative actions. Preventive actions could include targeted outreach with concise messaging to bass anglers, as this was the pathway of introduction in other states. Additional preventive actions could include notifying fish importers of the species, possibly being confused for largemouth bass, and prohibiting live possession or import using regulation.

This assessment was independently reviewed by three staff members from the Maryland Department of Natural Resources and three external reviewers who are experts in the field. Their reviews improved this assessment and select comments are provided in the Appendices.

Assessment Elements

- AS-ISK Risk Screening (Basic Risk + Climate Change): BRA + CRA = 19. This indicates that the species would be invasive in Maryland as its value is greater than threshold score of 15.4 recommended as indicative of invasive by Vilizzi et al. (2019). For the version of F-ISK used here, a score of 19 was more similar to the median of scores for invasive species reported by Vilizzi et al. (2019)(median = 21.7; range 11.9 – 33.0) than non-invasive species (median = 9.85). The full assessment is provided in the Appendices.

7. Certainty of Assessment

Confidence in the assessment was 0.65 and moderate. Confidence was based upon the available literature supporting an answer in the risk assessment (see Appendix). When an answer was directly supported by literature, then it was characterized with high certainty. When an answer could be supported by anecdotes or inferred, then it was characterized with medium certainty. When an answer had little support in the literature or anecdotes, then the reviewer used a best professional guess and characterized the answer as low certainty.

8. References

Bagley, J.C., R.L. Mayden, K.J. Roe, W. Holznagel, and P.M. Harris. 2011. Congeneric phylogeographical sampling reveals polyphyly and novel biodiversity within black basses (Centrarchidae: *Micropterus*). Biological Journal of the Linnean Society 104:346-363.

Baker, W.H., C.E. Johnston, and G.W. Folkerts. 2008. The Alabama bass, *Micropterus hensalli* (Teleostei: Centrarchidae), from the Mobile River basin. Zootaxa 1861:57-67.

Bangs, M. R., K. Oswald, and J. M. Quattro. 2017. Introgressive hybridization and species turnover in reservoirs: a case study involving endemic and invasive basses (Centrarchidae: Micropterus) in southeastern North America. Conservation Genetics 19:57–69.

Buynak, G.L., L.E. Kornman, A. Surmont, and B. Mitchell. 1989. Longitudinal differences in electrofishing catch rates and angler catches of black bass in Cave Run Lake, Kentucky. North American Journal of Fisheries Management 9:226-230.

Dicenzo, V.J., M.J. Maceina, and W.C. Reeves. 1995. Factors related to growth and condition of the Alabama subspecies of Spotted Bass in reservoirs. North American Journal of Fisheries Management 15:794-798.

Dorsey, L.G. and M.A. Abney. 2016. Changes in black bass population characteristics after the introduction of Alabama bass in Lake Norman, North Carolina. Journal of the Southeastern Association of Fish and Wildlife Agencies 3:161-166.

Gilbert, R.J. 1973. Systematics of *Micropterus punctulatus* and *M. p. henshalli*, and life history of *M. p. henshalli*. Master's thesis. Auburn University, Auburn, Alabama.

Greene, J.C. and M.J. Maceina. 2000. Influence of trophic state on spotted bass and largemouth bass spawning time and age-0 characteristics in Alabama reservoirs. North American Journal of Fisheries Management 20:100-108.

Kassler, T.W., J.B. Koppelman, T.J. Near, C.B. Dillman, J.M. Levengood, D.L. Swofford, J.L. VanOrman, and J.E. Claussen. 2002. Molecular and morphological analyses of the black basses: implications for taxonomy and conservation. Pages 291-322 *in* D.P. Phillip and M.S. Ridgway, editors. Black bass: ecology, conservation, and management. American Fisheries Society, Symposium 31, Bethesda, Maryland.

Maceina, M.J. and D.R. Bayne. 2001. Changes in the black bass community and fishery with oligotrophication in West Point Lake, Georgia. North American Journal of Fisheries Management 21:745-755.

Miranda, L.E. and E.D. Dibble. 2002. An ecological foundation for black bass management. Pages 433-453 *in* D.P. Philipp and M.S. Ridgeway, editors. Black Bass: Ecology, Conservation, and Management. American Fisheries Society, Symposium 31, Bethesda, Maryland.

Page, L.M. and B.M. Burr. 2011. Peterson Field Guide to Freshwater Fishes of North American North of Mexico. Second Edition, Houghton Mifflin Harcourt, New York, NY 663 pp.

Pierce, P.C. and M..J. Van Den Avyle. 1997. Hybridization between introduced spotted bass and smallmouth bass in reservoirs. Transactions of the American Fisheries Society 126:939-947.

Rider, S.J. and M.J. Maceina 2015. Alabama bass *Micropterus henshalli* Hubbs & Bailey, 1940. American Fisheries Society Symposium 82:83-91.

Ross, S.T. 2002. Inland Fishes of Mississippi. University Press of Mississippi, Jackson.

Shepherd, M.D. and M.J. Maceina. 2009. Effects of striped bass stocking on largemouth bass and spotted bass in Lewis Smith Lake, Alabama. North American Journal of Fisheries Management 29:1232-1241.

Taylor, A.T., J.M. Long, M.D. Tringali, and B.L. Barthel. 2019. Conservation of black bass diversity: an emerging management paradigm. Fisheries 44:20-36.

Vilizzi, L., G.H. Copp, B. Adamovich, D. Almeida, J. Chan, P.I. Davison, S. Dembski, F.G. Ekmekci, A. Ferincz, S.C. Forneck, et al. 2019. A global review and meta-analysis of applications of the freshwater Fish Invasiveness Screening Kit. Reviews in Fish Biology and Fisheries 29:529-568.

For more information, contact:
Fishing and Boating Services, 580 Taylor Avenue B-2 Annapolis, MD 20706
Toll Free in Maryland: 1-800-620-8367. Out of State or Direct call: 410-260-8257. TTY Users call via the MD Relay

Visit: dnr.maryland.gov.

Reference Publication Number: ***DNR17-082720243***

9. Appendix

Risk Assessment Scores

Statistics	
Scores	
BRA	**17.0**
BRA Outcome	**-**
BRA+CCA	**19.0**
BRA+CCA Outcome	**-**
Score partition	
A. Biogeography/Historical	**4.0**
1. Domestication/Cultivation	*0.0*
2. Climate, distribution and introduction risk	*1.0*
3. Invasive elsewhere	*3.0*
B. Biology/Ecology	**13.0**
4. Undesirable (or persistence) traits	*6.0*
5. Resource exploitation	*5.0*
6. Reproduction	*1.0*
7. Dispersal mechanisms	*0.0*
8. Tolerance attributes	*1.0*
C. Climate change	**2.0**
9. Climate change	*2.0*
Answered questions	
Total	***55***
A. Biogeography/Historical	**13**
1. Domestication/Cultivation	*3*
2. Climate, distribution and introduction risk	*5*
3. Invasive elsewhere	*5*
B. Biology/Ecology	**36**
4. Undesirable (or persistence) traits	*12*
5. Resource exploitation	*2*
6. Reproduction	*7*
7. Dispersal mechanisms	*9*
8. Tolerance attributes	*6*
C. Climate change	**6**
9. Climate change	*6*
Sectors affected	
Commercial	**4**
Environmental	**6**
Species or population nuisance traits	**13**
Thresholds	
BRA	**-**
BRA+CCA	**-**
Confidence	
BRA+CCA	**0.65**
BRA	**0.69**
CCA	**0.33**
Date and Time	
Date and Time	**30/06/2020 14:06:48**

Risk Assessment Report

AS-ISK v2

Taxon and Assessor details	
Category	Fishes and Lampreys (freshwater)
Taxon name	*Micropterus hensalli*
Common name	Alabama Bass
Assessor	Joseph Love
Risk screening context	
Reason and socio-economic benefits	Introduced as a sport fish
Risk Assessment Area	Maryland
Taxonomy	Kingdom Animalia Subkingdom Bilateria Infrakingdom Deuterostomia Phylum Chordata Subphylum Vertebrata Infraphylum Gnathostomata Superclass Actinopterygii Class Teleostei Superorder Acanthopterygii Order Perciformes Family Centrarchidae Subfamily None Genus Micropterus Species Micropterus henshalli (formerly M. punctulatus henshalli)
Native range	Micropetrus henshallii is native to the Mobile River basin in Alabama, Georgia and Mississippi (Rider and Maceina 2015, U.S. Geological Survey Nonindigenous Aquatic Species database).
Introduced range	This species has introduced in a restricted number of locations in the United States. In 1970 the species was reported from introduced areas in Georgia and has been collected at several locations (Hiwassee River, upper Chattahoochee River, upper Ocmulgee River, and Hiwassee River). The species was later introduced in California (1974) South Carolina (1985), Texas (1996), and Tennessee (2015). Since 2019 the species has been reported from Lake Gaston in North Carolina and Virginia, as well as Claytor Lake in Virginia. This species has not been introduced to Maryland.
URL	https://www.fishbase.se/Summary/SpeciesSummary.php?ID=66684&AT=alabama+bass

			Response	Justification (references and/or other information)	Confidence
		A. Biogeography/Historical			
		1. Domestication/Cultivation			
1	1.01	Has the taxon been the subject of domestication (or cultivation) for at least 20 generations?	No	There are no known hatchery operations that cultivate this species. The species is managed with creel limits across its native range and there are no reported conservation threats. Because the species is not widely introduced, and because there are no conservation concerns, cultivation in artificial hatchery settings do not appear to be necessary.	High
2	1.02	Is the taxon harvested in the wild and likely to be sold or used in its live form?	No	It is generally illegal to sell black bass for commercial gain. The fishery for Alabama bass, like other black bass, lies within a catch-and-release sport and therefore, human consumption tends to be a very minor component.	Very high
3	1.03	Does the taxon have invasive races, varieties, sub-taxa or congeners?	Yes	Largemouth bass, a congener, is considered one of the world's worst invasive species. It has been introduced to other contentinets where it can dominate as an aquatic predator.	Very high

		2. Climate, distribution and introduction risk			
4	2.01	How similar are the climatic conditions of the Risk Assessment (RA) area and the taxon's native range?	Medium	After performing Climatch, Maryland ecosystems were categorized as "medium" compatability.	Very high
5	2.02	What is the quality of the climate matching data?	High	The Climatch dataset were based on long term monitoring weather stations distributed across the planet. There are 16 environmental variables that are monitored and they include ones related to seasonal changes in atmospheric temperature and rainfall. The source stations selected for climate matching scenarios were ones that occurred within the native range of Alabama Bass.	Very high
6	2.03	Is the taxon already present outside of captivity in the RA area?	No	The species has not been reported or observed in the risk assessment area. There are no records of occurrence in Maryland from the non-indigenous aquatic species database for USGS. Additionally, the species has not been reported to the Department of Natural Resources via its Angler's Log submission portal, or on social media. It has also neither been reported in the Chesapeake Bay watershed by neighboring jurisdictions, nor found in other major watersheds, such as the Youghighenty watershed (western Maryland) or coastal bays watershed (eastern Maryland).	Very high
7	2.04	How many potential vectors could the taxon use to enter in the RA area?	>1	There is one major pathway of introduction reported across the introduced range of the species, that by illegal angler introductions. The species was also introduced by the Texas Parks and Wildlife Department. According to comments in the USGS nonindigenous aquatic species database it was first stocked in 1996.	High
8	2.05	Is the taxon currently found in close proximity to, and likely to enter into, the RA area in the near future (e.g. unintentional and intentional introductions)?	Yes	The species has been reported recently from Virginia at the boundary of Virginia and North Carolina. It has been found in Claytor Lake (Virginia) and Lake Gaston (Virginia and North Carolina). The species could enter into the Risk Assment area via illegal angler introduction.	Low
		3. Invasive elsewhere			
9	3.01	Has the taxon become naturalised (established viable populations) outside its native range?	Yes	The species was first reported from California in 1973 and was last observed in 2000, resulting in over 20 generations occurring outside of its native range. The species was also reported from Keowee Reservoir in South Carolina in 1985 and has persisted since then, again resulting in over 20 generations occurring outside of its native range.	High
10	3.02	In the taxon's introduced range, are there known adverse impacts to wild stocks or commercial taxa?	Yes	Introductions have led to deleterious impacts on endemic populations of black bass species. Hybridization between Alabama bass and Bartram's Bass has been detected in the Savanna River (South Carolina) and between Alabama bass and smallmouth bass (Georgia, North Carolina). Hybridization has caused a loss in genetic diversity. There has also been declines in abundance of smallmouth bass (Pierce and Van Den Avyle 1997) and largemouth bass (Dorsey and Abney 2016). Alabama bass spawn earlier and grow faster than largemouth bass in low productivity reservoirs, and could dominate the black bass fishery if the ecosystem is oligotrophic (Maceina and Bayne 2001). Largemouth Bass virus has been isolated from Alabama Bass, but the disease has not been observed (Rider and Maceina 2015). The virus can be spread to populations of largemouth bass if introduced to an ecosystem where the virus does not currently occur. Parasite loads are expected to be very similar to more than 100 species of parasites that affect populations of largemouth bass.	Very high
11	3.03	In the taxon's introduced range, are there known adverse impacts to aquaculture?	No	There have been no adverse impacts reported to aquaculture. The species has been introduced for sport fishing opportuniites and into aquatic ecosystems where commercial aquaculture does not occur.	Very high
12	3.04	In the taxon's introduced range, are there known adverse impacts to ecosystem services?	No	There have been no reported adverse effects on ecosystem services. Researchers have not cited any ecosystem services that have lost or reduced value or function. In some cases, ecosystem services may have benefited from introduction as the species provides a sport fishing opportunity for anglers.	Low
13	3.05	In the taxon's introduced range, are there known adverse socio-economic impacts?	No	There have been no reported adverse socio-economic impacts owed to introduction across the introduced range of Alabama bass. There may have been some positive economic benefits because anglers commonly target black bass. The socioeconomic consequences of introduction have not been reported, to the assessor's knowledge.	Low

		B. Biology/Ecology			
		4. Undesirable (or persistence) traits			
14	4.01	Is it likely that the taxon will be poisonous or pose other risks to human health?	No	The species has not reportedly caused injury to humans and is popularly caught by humans. It lacks teeth sufficient for impaling or causing tissue to break. It has spines, but unlike lionfish or some catfish, the spines are not venomous or poisionous. The congeners of this species have been widely introduced and also have not reportedly caused risks to human health. In some locations, congeners are consumed by humans and health risks from consumption are not more hazardous than eating many other wild caught freshwater fishes.	Very high
15	4.02	Is it likely that the taxon will smother one or more native taxa (that are not threatened or protected)?	Yes	Alabama bass have higher body growth rates than congeners in some habitats. In those areas Alabama bass can become the dominant black bass fished, which could compromise the persistence of native congeners.	High
16	4.03	Are there any threatened or protected taxa that the non-native taxon would parasitise in the RA area?	No	In the risk assessment area, there are no threatened or protected congeners that would be adversely affected by introduction of Alabama bass. In some habitats, there may be taxa of conservation concern (e.g., Chesapeake logperch; hellbender; freshwater crayfish) that occupy habitats similar to those reported for Alabama bass. There have been no reported adverse impacts on species other than congeners for Alabama bass. There is therefore only medium confidence in my response.	Medium
17	4.04	Is the taxon adaptable in terms of climatic and other environmental conditions, thus enhancing its potential persistence if it has invaded or could invade the RA area?	Yes	The species has been introduced into states distant from its origin (e.g., California, Texas). It has established populations in these areas that differ climatically from the southeastern United States. The Climatch model for this assessment for a northerly state in the southeastern United States indicated a medium level of risk. None-the-less, the species has a restricted native range in the southeastern United States relative to the native range of its congener, largemouth bass, and may not be as adaptable as other species within its genus.	Medium
18	4.05	Is the taxon likely to disrupt food-web structure/function in aquatic ecosystems if it has invaded or is likely to invade the RA area?	No	Available information indicate that Alabama bass can outcomplete largemouth bass, which is the most widely distributed congener in the risk assessment area. Assuming displacement of largemouth bass, then Alabama bass may fill a role that largemouth bass has long filled for ecosystems. Both largemuth bass and smallmouth bass, which also is widespread in the risk assessment area, overlap in habitat preferences and trophic levels with Alabama bass. If displacement is not immediate, then effects on food-web structure/function would be additive as is observed when invasive species are added to an ecosystem (Brown et al. 2015; Jackson et al. 2016). Additive effects could further depress prey populations unless there are compensetory mechanisms that evolve. Even so, the pace of evolution for rare species in diverse ecosystems may not be sufficient for adaptation of compensetory mechanisms. Hence, confidence in this decision is low.	Low
19	4.06	Is the taxon likely to exert adverse impacts on ecosystem services in the RA area?	No	Introduction of Alabama bass has not reportedly caused adverse impacts on ecosystem services across its introduced range. The introduction of congneners such as largemouth bass, has arguably improved ecosystem services in some areas because of the valued sport fishery or consumption fishery that developed around it.	Low
20	4.07	Is it likely that the taxon will host, and/or act as a vector for, recognised pests and infectious agents that are endemic in the RA area?	Yes	Largemouth Bass Virus has been isolated from Alabama Bass, but the disease has not been observed (Rider and Maceina 2015). Largemouth Bass Virus can be lethal to largemouth bass if introduced to an ecosystem where the virus does not exist. Parasite loads are expected to be very similar to more than 100 species of parasites that affect populations of largemouth bass.	Very high
21	4.08	Is it likely that the taxon will host, and/or act as a vector for, recognised pests and infectious agents that are absent from (novel to) the RA area?	Yes	Largemouth Bass Virus is likely omnipresent in the tidal basin of the Chesapeake Bay watershed, but has not been isolated for several impoundments within Maryland where largemouth bass occurs. Introduction of infected Alabama Bass into these areas could likewise introduce the virus.	Medium

22	4.09	Is it likely that the taxon will achieve a body size that will make it more likely to be released from	Not applicable	The species is not marketed or marketable in the commercial aquarium trade.	High
23	4.10	Is the taxon capable of sustaining itself in a range of water velocity conditions (e.g. versatile in habitat use)?	Yes	Alabama bass has been collected from small to medium rivers and impoundments (Page and Burr 2011). It is found in clear, deep water habitats with rocky substrates, and less abundant in turbid waters with sand or mud substrates or brackish waters of the Mobile-Tensaw River delta. Juveniles have been collected in sluggish, or slow current waters, but not generally ones with wood debris or vegetation where largemouth bass juveniles thrive. Instead, juvenile Alabama Bass is collected over gravel and cobble substrates.	High
24	4.11	Is it likely that the taxon's mode of existence (e.g. excretion of by-products) or behaviours (e.g. feeding) will reduce habitat quality for native taxa?	No	Congeners of Alabama bass are not considred eco-engineers like carp or zebra mussels. Predatory habits might result in prey species occupying refuges for longer periods of time. These behavioral actions from Alabama bass might reduce foraging space/time for prey species, but should not result in dramatically reduced habitat quality for native taxa. Prey species have evolved adaptions for foraging efficiently in habitats occupied by congeners, largemouth bass and smallmouth bass that have thrived for over 20 generations in the risk assessment area.	Medium
25	4.12	Is the taxon likely to maintain a viable population even when present in low densities (or persisting in adverse conditions by way of a dormant form)?	Yes	Alabama bass maintains small populations across its native range and has established populations in fairly isolated ecosystems across its introduced range.	High
		5. Resource exploitation			
26	5.01	Is the taxon likely to consume threatened or protected native taxa in the RA area?	Yes	Diets of nearly 1,400 fish examined by Shepherd and Maceina (2009) included crayfish, shad, and sunfishes and crappie. Numerically shad (< 70 mm) were most abundant in diets. In the risk assessment area, there are native freshwater species of conservation concern: crayfish (Orconectes obscurus), shad species (American shad, Hickory shad, herring) that reproduce in tidal freshwater, and rare sunfishes (e.g., black banded sunfish). The blackbanded sunfish is also state listed as endangered.	Medium
27	5.02	Is the taxon likely to sequester food resources (including nutrients) to the detriment of native taxa in the RA area?	No	Congeners of Alabama bass that have been studied for decades have not been shown to sequester food resources to the expense of native species. The species of Micropterus tend to be generalists and opportunistic, but it forages based on need and does not sequester prey.	High
		6. Reproduction			
28	6.01	Is the taxon likely to exhibit parental care and/or to reduce age-at-maturity in response to environmental conditions?	No	The family of fishes that include Alabama bass generally exhibits some level of parental care, despite changing environmental conditions. Therefore it is unlikely that a change in environmental conditions would cause greater levels of parental care.	Very high
29	6.02	Is the taxon likely to produce viable gametes or propagules (in the RA area)?	Yes	Habitats support productive populations of smallmouth bass and largemouth bass. While Alabama bass may be less fecund that its congeners, the habitat requirements for growth of juveniles are very similar to those of its congeners, with which it coexists across its introduced and native range.	Very high
30	6.03	Is the taxon likely to hybridise naturally with native taxa?	Yes	Hybridization between Alabama bass and Bartram's Bass has been detected in the Savanna River (South Carolina) and between Alabama bass and smallmouth bass (Georgia, North Carolina). Hybridization has caused a loss in genetic diversity. There are native smallmouth bass populations in the Youghiogheny River and those populations exist in habitats preferred by Alabama bass.	Very high
31	6.04	Is the taxon likely to be hermaphroditic or to display asexual reproduction?	No	There is no documented evidence of asexual reproduction for any member within the family of Alabama bass. While smallmouth bass males (and some largemouth bass) have produced ova in response to environmental pollution, those ova are not viable. These fish may be considered hermaphrodites, but there is no evidence of functional hermaphroditism.	Very high
32	6.05	Is the taxon dependent on the presence of another taxon (or specific habitat features) to complete its life cycle?	No	This species does not require another species or highly specific habitat features to complete its life cycle. Juveniles have been collected in sluggish and fast moving waters. Congeners tend to be habitat generalists as evidenced by widespread distributions.	Very high
33	6.06	Is the taxon known (or likely) to produce a large number of propagules or offspring within a short time span (e.g. <1 year)?	No	Alabama bass females produce between 1,500 and 7,200 eggs per year (Gilbert 1973) and fecundity is lower than largemouth bass and spotted bass.	Very high

33	6.06	Is the taxon known (or likely) to produce a large number of propagules or offspring within a short time span (e.g. <1 year)?	No	Alabama bass females produce between 1,500 and 7,200 eggs per year (Gilbert 1973) and fecundity is lower than largemouth bass and spotted bass.	Very high
34	6.07	How many time units (days, months, years) does the taxon require to reach the age-at-first-reproduction? [In the Justification field, indicate the relevant time unit being used.]	>10	It takes greater than 10 months for a black bass to become sexually mature.	Very high
		7. Dispersal mechanisms			
35	7.01	How many potential internal vectors/pathways could the taxon use to disperse within the RA area (with suitable habitats nearby)?	>1	There is natural dispersal that can occur and anglers may catch them from one location and release them in another.	Very high
36	7.02	Will any of these vectors/pathways bring the taxon in close proximity to one or more protected areas (e.g. MCZ, MPA, SSSI)?	Yes	The species may be introduced to impoundments or lotic waters. If introduced to lotic waters, then natural dispersal will enable the species to spread throughout the watershed. If introduced to impounded waters, then anglers may catch, possess, and release the fish to another body of water. There are no restrictions for live possession of black bass species in Maryland, though introductions of exotic species is illegal.	Low
37	7.03	Does the taxon have a means of actively attaching itself to hard substrata (e.g. ship hulls, pilings, buoys) such that it enhances the likelihood of dispersal?	No	The species is a fish that does not have adaptations for attaching itself on hard substrates.	Very high
38	7.04	Is natural dispersal of the taxon likely to occur as eggs (for animals) or as propagules (for plants: seeds, spores) in the RA area?	No	Alabama bass, like other species of Micropterus, build nests. Eggs are tended in nests until hatching when fry are then guarded by the male. Nests for congeners such as largemouth bass are built in sluggish water that helps prevent disruption to the nest. While spawning activity has not been observed for Alabama bass, juveniles have been observed from calm waters, which indicates that swift currents would not transport eggs downriver. During storms, however, nests may be disrupted and eggs could	Low
39	7.05	Is natural dispersal of the taxon likely to occur as larvae/juveniles (for animals) or as fragments/seedlings (for plants) in the RA area?	No	Juveniles for largemouth bass tend to be restricted in dispersal to the spawning location. Larvae are guarded on the nest by the male and are not adapted for transportation downstream or by water	Low
40	7.06	Are older life stages of the taxon likely to migrate in the RA area for reproduction?	Yes	There was no reported information on dispersal behavior of Alabama bass. However, work with congeners (smallmouth bass and largemouth bass) suggest greater movement rates during spring and the ability to travel small distances (tens of meters) to find spawning areas.	Low
41	7.07	Are propagules or eggs of the taxon likely to be dispersed in the RA area by other animals?	No	There is no evidence that eggs are normally transported by other animals. Because eggs are guarded in nests, it is unlikely that another taxon will disperse eggs.	Medium
42	7.08	Is dispersal of the taxon along any of the vectors/pathways mentioned in the previous seven questions (7.01–7.07; i.e. both unintentional or intentional) likely to be rapid?	Yes	Dispersal rates for congeners are typically low, but can be high when introduced to an unfamiliar habitat. When black bass have been released to new habitats following tournaments, movement rates are typically greater than if the fish had not been moved at all. Additionally, if introduced by anglers, the dispersal of the species may be rapid and happen within a day if the fish is transported by vehicle overland.	High
43	7.09	Is dispersal of the taxon density dependent?	No	There is no evidence that dispersal of Alabama bass is density dependent. This question requires more research.	Low
		8. Tolerance attributes			
44	8.01	Is the taxon able to withstand being out of water for extended periods (e.g. minimum of one or more hours) at some stage of its life cycle?	No	Species of Micropterus are highly dependent on being in water, and usually well-oxygenated water. They will not survive out of water for more than one hour.	Very high
45	8.02	Is the taxon tolerant of a wide range of water quality conditions relevant to that taxon? [In the Justification field, indicate the relevant water quality variable(s) being considered.]	No	The persistence of Micropterus in habitats strongly depends on habitat quality. While a habitat generalist, largemouth bass does not thrive in water with low oxygen levels. Largemouth bass have lower survivorship in low oxygen water, particularly after angling stress (Keretz et al. 2018). Because Alabama bass naturally occur in high energy, oxygen rich, lotic waters, it is unlikely that they have evolved a broader tolerance to low oxygen than largemouth bass. Smallmouth bass exposted to endocrine disruptor compounds can become intersex (Hinck et al. 2009; Iwanowicz et al. 2009). Chemical pollutants in Susquehanna River were identified as a potential source of mortality of juvenile smallmouth bass over the past 20 years.	High

46	8.03	Can the taxon be controlled or eradicated in the wild with chemical, biological, or other agents/means?	Yes	In its introduced range, Alabama bass has become abundant quickly. Harvest pressure has been insufficient for eradication. It may also not be a good method of control. Anglers typically practice catch-and-release with black basses. Other methods of control, such as chemical or biological, have not been tested. In areas where largemouth bass is invasive, control mechanisms have typically involved removal using fishing gear such as nets or electrofishing by government agencies. Ricks (2006) and Hunter (2006) found that Alabama bass were at least twice as likely to die from handling stress than largemouth bass, especially when water temperatures exceeded 26 degrees Celsius. Therefore it may be possible to enhance control by focusing it during summer or warm weather.	Low
47	8.04	Is the taxon likely to tolerate or benefit from environmental/human disturbance?	Yes	Across its native range, Alabama bass is the dominant black bass caught in reservoirs of the Tallapoosa, Cossa and upper Warrior rivers. These reservoirs were created by humans. Alabama bass tends to dominate black bass fisheries in oligotrophic systems, likely because they are adapted and outgrow largemouth bass juveniles. In more eutrophic impoundments, Alabama bass can be as abundant as largemouth bass.	High
48	8.05	Is the taxon able to tolerate salinity levels that are higher or lower than those found in its usual environment?	Yes	Alabama bass has been collected from brackish to freshwater, but is most prolific in freshwater. Congeners such as largemouth bass are likewise collected from brackish to freshwater. While Alabama bass tolerates saltwater, the upper lethal limit of saltwater tolerance is not known.	Low
49	8.06	Are there effective natural enemies (predators) of the taxon present in the RA area?	Yes	There are birds of prey and snakes that may consume adults and many aquatic organisms (e.g., sunfish, gar) that could consume different sizes of Alabama bass. Humans are unlikely to become a significant predator of Alabama bass.	Medium
C. Climate change					
9. Climate change					
50	9.01	Under the predicted future climatic conditions, are the risks of entry into the RA area posed by the taxon likely to increase, decrease or not change?	Increase	Warmer waters might facilitate establishment of typically southern species, such as Alabama bass. It is expected that smallmouth bass and largemouth bass distributions will change as freshwater warms, summer season intensifies, and winter water temperatures become more moderate than frigid.	Low
51	9.02	Under the predicted future climatic conditions, are the risks of establishment posed by the taxon likely to increase, decrease or not change?	No change	The species is not likely to become more invasive as climate conditions change unless its digestion rate or consumption rate increases for a longer period of time during the year.	Low
52	9.03	Under the predicted future climatic conditions, are the risks of dispersal within the RA area posed by the taxon likely to increase, decrease or not change?	No change	The pathway of introduction will be angler introduction, whose probability is not likely to change with climatic conditions.	High
53	9.04	Under the predicted future climatic conditions, what is the likely magnitude of future potential impacts on biodiversity and/or ecological integrity/status?	No change	The species is not likely to become more invasive as climate conditions change unless its digestion rate or consumption rate increases for a longer period of time during the year.	Low
54	9.05	Under the predicted future climatic conditions, what is the likely magnitude of future potential impacts on ecosystem structure and/or function?	No change	Ecosystem structure and/or function is not likely to change with climate change as a result of Alabama bass introduction. However, the effect of introduction from Alabama bass on ecosystem structure is not well-known and will depend on how consumption rates are affected by predicted changes in water temperature.	Low
55	9.06	Under the predicted future climatic conditions, what is the likely magnitude of future potential impacts on ecosystem services/socio-economic factors?	No change	Climate change might affect fishing activity by encouraging people to spend more time fishing if air temperatures warm and alott a longer fishing season. In that case, socio-economic factors related to fishing are not expected to worsen following introduction of a sport fish, unless there are detrimental impacts of Alabama bass on other more popular black bass fisheries. Then, greater fishing effort aimed at a species that is more likely to die from handling stress during warm weather, could be more short-lived than fishing for a more tolerant species, such as largemouth bass, which would ultimately and negatively affect the fishery socio-economics.	Low

Select Comments from Reviews of Risk Assessment Summary

Internal review received on 07/21/2020.

Would love to see the raw data [for length data, Section 3 Biology and Ecology]. They stated they used mean length at age, which probably means Linf is overestimated. Those are good Linfs for trophy largemouth bass fisheries.

Certainty of Assessment: I'm assuming this means you're 65% sure that there is a moderate risk of introduction and establishment? How is this determined? Would it be simple to run an assessment for Lake Gaston area and portions of VA where they have been found to provide some context in the confidence? Make sense? Also, would it make sense to split MD regionally? Or at least east vs west? Mountain vs Piedmont?
Response: There is moderate certainty based on the availability of the literature or information. Each question in the risk assessment is scored with confidence in the answer based upon the literature or available science. This score represents a summary of those confidence levels.

Risk has the potential to increase depending on future climate scenarios in Maryland, as current trends indicate a warmer climate.

External review received on 07/27/2020 (Virginia Department of Wildlife Resources)

I found your risk assessment to be very thorough and you hit on all of the major case studies that I came across when researching Alabama bass myself. Of particular significance is the Lake Norman study, which shows the kind of impacts Alabama bass can have on established largemouth fisheries. To fill you in on the latest in Virginia, we have confirmed Alabama bass to also be present in Philpott Lake, Martinsville Reservoir, and Lake Gaston in addition to Claytor Lake. Unfortunately, some of the genetic sampling has shown strong hybridization between Alabama bass and smallmouth bass.

Our education campaign launched about a month ago with a press release and posts on our agency social media avenues. The posts received quite a bit of attention and got our angling community talking which is a start… We also just finished putting together a Know the Difference poster that we plan on distributing to tackle shops across the state, fishing clubs, and post at boat ramps on impoundments where Alabamas are present, and where we might expect them to possibly be transferred next. Our proposed regulations will go to the board in August, when we plan to add Alabama bass to the predatory and undesirable species list which makes live possession illegal outside of the body of water in which the fish was caught. We plan to have an open bag with no size limit.

There are definitely some strong Alabama bass proponents in our angling community, but there are also anglers that understand the science and are in support of our initiative.

External review received on 07/27/2020 (Virginia Department of Wildlife Resources)

Alabama bass are in California - that's where the IGFA record was caught. https://igfa.org/igfa-world-records-search/?search_type=CommonNameSummary&search_term_1=Bass%2C+Alabama

External review received on 08/06/2020 (Alabama Division of Wildlife and Freshwater Fisheries, Auburn University).

1. Background and Description

Line 1: There's definitely more and more debate than ever on the number of black bass species. You may want to say, "one of at least twelve recognized temperate black basses." I assume with the twelve species you did not include Bartram's, Florida, Choctaw, or Altamaha bass. And depends on who you talk with whether or not Florida or Choctaw bass have been "officially" recognized. Of course, some folks don't even recognize some of the recently described bass species from the redeye bass complex!

Line 2: include "streams" as many of the newly described black basses and Alabama are found in streams also.

Line 7: Alabama Bass readily hybridize with other black bass species also. In the Chattahoochee River basin, we have found (by genetically testing) Largemouth x Alabama, Spotted x Alabama, Shoal x Alabama, and Shoal x Alabama x Spotted bass hybrids. Alabama Bass was the final "nail in the coffin" for Shoal Bass in Alabama. Coupled with droughts, probable illegal harvest, and Alabama Bass hybridizing with Shoal Bass, Shoal Bass is effectively extirpated from Alabama.

Within the United States

I would include catchability along with fighting ability to why anglers target Alabama Bass. And also why anglers move Alabama Bass outside its native range. I often hear once largemouth get "lock jaw" you can always find Alabama Bass to catch. This is typically my strategy during the summertime when I can't catch largemouth, then it's time to go after Alabama Bass in lake Jordan or Spotted bass at West Point.

Overall, based on the current knowledge of Alabama Bass the ERSS is accurate on the potential impact Alabama Bass could have on black bass fisheries in Maryland. Education is the best option to prevent any illegal introduction, but there are some that just don't care. That's why we have established populations of Blueback Herring in Alabama and now Alewife have been collected in the Coosa River. Hybridization will be the biggest issue you face if Alabama bass are introduced in Maryland.

External review received on 08/19/2020 (Virginia Department of Wildlife Resources).

We all thought that the draft manuscript was well researched and referenced. Our agency recently received a report from Dr. Eric Peatman, a geneticist from Auburn University, indicating that genetic evaluation of potential Alabama Bass confirmed that introductions into two more Virginia reservoirs near the North Carolina border have occurred. These reservoirs are Philpott Reservoir and Martinsville Reservoir. The fish were collected during April and May, 2020. With this recent development, our expectation is that Alabama Bass will continue to be moved to more Virginia waters. Therefore, we are stepping up regulatory action and an information campaign to make anglers aware of the potential problems that Alabama Bass can create.

DRAFT REPORT FOR APPROVAL: Alabama Bass (*Micropterus henshalli*), Ecological Risk Screening Summary

Lead Agency: _____Department of Natural Resources_____

Staff Contact: __Joseph Love_____

Phone: 410-603-8344 Email: joseph.love@maryland.gov

1. Why was this report drafted?

- ❑ Legislative Mandate
- ❑ Federal Grant Requirement
- ❑ State Grant Requirement
- ❑ Judicial Requirement
- X Other _Outreach and in support of regulatory idea

Please provide details including the bill number or judicial reference

2. To whom is the report submitted? Check or highlight all that apply.

- ❑ The Governor
- ❑ The Maryland General Assembly
- ❑ A Federal Agency – specify:
- ❑ A State Agency – specify:
- ❑ Internal Only
- X Online

- ❑ For public comment
- ❑ Other _____

3. When is the report due? What is the reason for the deadline? (in statute, project timeline, etc.). By October 2020 so that it may become available to the public when the regulatory idea is scoped.

4. Approval status chart to be completed as being reviewed/approved below:

Please review this report and complete below:

Reviewer	Date	If you approve, please type Approved	Signature (Initials)
Unit Director	9/25/20	Approved	BA
Assistant Secretary	9/25/20	Approved	BA
Communications	9/30/20	Approved via email	Megan
Legislative Director	10/13/20	Approved via email	JM
Secretary	10/26/20	Approved w suggested edits	JHR