

Recovery Plan for Endangered Alabama Sturgeon (*Scaphirhynchus suttkusi*)

https://ecos.fws.gov/docs/recovery_plan/20130504_NAL%20AL%20Sturgeon%20Recovery%20Plan%2005042013.pdf

Original Approved: July 8, 2013

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We have identified the best available information that indicates the need to amend recovery criteria for the Alabama Sturgeon (*Scaphirhynchus suttkusi*). In this proposed modification, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and the rationale supporting the proposed recovery plan modification. The proposed modification is shown as an addendum that supplements the recovery plan, superseding only Part II, page 30, of the recovery plan. Recovery plans are a non-regulatory document that provide guidance on how best to help recover species.

**For
U.S. Fish and Wildlife Service
Southeast Region
Atlanta, Georgia**

March 2019

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

The proposed amendments to the recovery criteria were developed using the most recent and best available information for the species. The lead biologist gathered the information and notified conservation partners of the Service's process to complete this amendment. Ultimately, biologists and managers in the Alabama Ecological Services Field Office developed the amended recovery criteria for the Alabama Sturgeon.

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list." Legal challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors.

Recovery Criteria

The current recovery plan (https://ecos.fws.gov/docs/recovery_plan/20130504_NAL%20AL%20Sturgeon%20Recovery%20Plan%2005042013.pdf) only provides downlisting criteria for the Alabama Sturgeon, see Part II, page 30.

Synthesis

The Alabama Sturgeon was listed as endangered on May 5, 2000 (65 FR 26438). Critical habitat was designated in 2009 and included one unit. The unit is the Alabama River from its confluence with the Tombigbee River (Clarke and Baldwin counties, Alabama) upstream to R.F. Henry Lock and Dam (Autauga and Lowndes counties, Alabama) and the Cahaba River from its confluence with the Alabama River (Dallas County, Alabama) upstream to U.S. Highway 82 near the Fall Line (Bibb County, Alabama).

This species primarily occurs in big rivers. Alabama Sturgeon are likely similar to other sturgeon species, having eggs that are adhesive that require adequate flow for development (Kuhajda and Rider 2016). Sturgeon larvae are planktonic, drifting with river currents, with post larval stages eventually settling out to the river bottom. As such, long reaches of unimpeded flow are needed for egg and larval development.

The historical range of this small, potamodromous (migrates between freshwater areas), freshwater sturgeon consisted of about 1,600 kilometer (km) (994 mi) of river habitat in the Mobile River Basin in Alabama and Mississippi (USFWS 2010). There are records of sturgeon captures from the Black Warrior, Tombigbee, Alabama, Coosa, Tallapoosa, Mobile, Tensaw, and Cahaba rivers (Burke and Ramsey 1985, 1995). Since 1997, there have been only 7 individuals collected, from the Cahaba and Alabama rivers (Kuhajda and Rider 2016), in targeted sampling efforts or incidental captures. Propagation of Alabama Sturgeon has been attempted but no offspring have been produced (Kuhajda and Rider 2016). Results of recent collections of environmental DNA from water samples have detected the species in the Alabama River from Millers Ferry Lock and Dam (Pfleger, *et al.* 2016).

The Alabama Sturgeon has declined and has experienced significant curtailment of its range due to extensive habitat modifications (e.g., dam construction, changes in natural flow regimes, navigational channel dredging, and reduced water quality) (USFWS 2010). Incidental commercial and recreational harvest of the species has been documented (Kuhajda and Rider 2016) and is believed to be a current threat. The entire historical range of the Alabama Sturgeon in the Mobile River basin is now controlled by a series of large locks and dams. These man-made structures have resulted in a series of impoundments that are interspersed with short, free-flowing reaches. The primary issues affecting the Alabama Sturgeon are its small population size and its apparent inability to successfully recruit due to habitat modification. Throughout the historical range the types of long, free-flowing habitats needed by Alabama sturgeon larvae to drift and develop may no longer exist.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that protections afforded by the Act are no longer necessary and the Alabama Sturgeon may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term “endangered species” means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term “threatened species” means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made “solely on the basis of the best scientific and commercial data available.” Thus, while recovery plans provide important guidance to the Service, States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species’ status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*.

Amended Recovery Criteria

We are providing recovery criteria for the Alabama Sturgeon Recovery Plan (USFWS 2013), which will supersede the existing downlisting criteria. The below recovery criteria describes a recovered species, or a species that should be considered for removal from the Federal Lists of Endangered and Threatened Wildlife and Plants (50 CFR 17).

1. At least two (2) populations exhibit a stable or increasing trend, natural recruitment, and multiple age classes (Factors A, B, and E).
2. The Alabama River Basin and the Tombigbee River Basin are each occupied by at least one (1) population, and sufficient length of unimpeded continuous flowing river is available in each river basin (Factors A, B, and E).
3. Threats have been addressed and/or managed to the extent that the species will be viable into the foreseeable future (Factors A, B, D, and E).

Justification for Amended Recovery Criteria

Criterion 1: Populations that exhibit a stable or increasing trend, natural recruitment, and multiple age classes demonstrate that the population is secure and will be resilient to habitat destruction, incidental commercial and recreational harvest, limited enforcement, and stochastic events (Factors A, B, and E). For the Alabama Sturgeon, it is believed that 2 populations exhibiting these traits are necessary to ensure sufficient redundancy for the species to no longer require protection under the Act.

Criterion 2: To ensure that the species will not become threatened with extinction in the foreseeable future, a sufficient number of populations should be distributed throughout the Tombigbee and Alabama river basins. It is believed that the spatial distribution and number of populations (as defined in criterion 1) are sufficient to protect against extinction from catastrophic events, maintain adaptive potential, and no longer require hatchery augmentation. Expanding the species' range into historically occupied river reaches will increase its resiliency, representation, and redundancy, and reduce threats due to habitat destruction, incidental commercial and recreational harvest, limited enforcement, and stochastic events (Factors A, B, and E).

Criterion 3: Abatement of the threats to the Alabama Sturgeon will allow populations to become stable and contribute to the viability of the species. The Alabama Sturgeon is only known to persist in large, free-flowing rivers. Commercial and recreational fishing within the historical range of the Alabama Sturgeon has led to incidental harvest. Current State and Federal regulations regarding pollutants are assumed to be protective of native freshwater fishes; however, some species, including the Alabama Sturgeon, may have lower thresholds to some pollutants than the test organisms commonly used in developing the criteria. Eliminating significant sources of sedimentation and new dam construction; reducing navigational channel dredging; providing natural flow regimes; and adhering to good land management practices that minimize non-point source pollution in these rivers, will contribute to the conservation of the species into the foreseeable future (Factors A, B, D, and E).

Rationale for Amended Recovery Criteria

The proposed recovery criteria reflect the best available and most up-to-date information on the Alabama Sturgeon. The Service adopted the analysis of Resiliency, Redundancy, and Representation (3Rs) as a means to determine species viability in regards to listing and other regulatory decisions. The amended criteria follow a similar analysis process. All criteria must address and meet the species needs to accomplish the standards under the 3Rs.

Resiliency (as defined in Smith *et al.*, 2018) is met through Criterion 1 listed above. The Service believes establishment of a stable or increasing trend in population numbers, and determining successful natural recruitment through multiple age classes, the species will withstand any stochastic disturbance that may occur into the future.

Redundancy (as defined in Smith *et al.*, 2018) is addressed in Criteria 1 and 2. The requirement of two resilient populations across the range, including at least one in each of the Alabama River Basin and Tombigbee River Basin, will provide the distribution necessary to avoid extinction following any unforeseen catastrophic event. These variances will shield populations across multiple possible catastrophic events.

Representation (as defined in Smith *et al.*, 2018) will be accomplished when the criteria listed above is accomplished. The species will be distributed across multiple habitat types and river basins. This should allow for preservation of genetic exchange into the future between two or more populations, distribution across multiple natural variances in habitat types, and allow for future adaptations to changing environmental conditions.

Information suggests that long stretches of uninterrupted flows are necessary for *Scaphirhynchus* sturgeons recruitment. Adults need to move significant distances upstream to spawn, while larval *Scaphirhynchus* spp. require 94 to 530 km (58-329 mi) of riverine conditions, depending on species and water velocity (Braaten *et al.* 2008). Larval sturgeon drifting into impounded river reaches are unlikely to survive. The maximum length of free-flowing habitat currently available to Alabama Sturgeon larvae is about 161 km (100 mi). Therefore, ensuring sufficient length of unimpeded continuous flowing river is available in each river basin will give Alabama Sturgeon larvae the opportunity to develop into sexually mature adults.

Opportunities to increase range, as well as population resiliency, representation, and redundancy of Alabama Sturgeon are currently limited. The development of a successful propagation program and reintroduction strategy will demonstrate that future threats are likely to be addressed through active management without the need for relisting the species, ensuring it no longer needs the protection of the Act. Availability of hatchery facilities, resources, and programs provide for husbandry should future conditions or developing threats arise.

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