and willfully offer, pay, solicit, or receive remuneration to induce or reward business reimbursable under Federal health care programs. The offense is classified as a felony and is punishable by fines of up to $25,000 and imprisonment for up to 5 years. OIG may also impose civil money penalties, in accordance with section 1128A(a)(7) of the Act (42 U.S.C. 1320a–7a(a)(7)), or exclusion from Federal health care programs, in accordance with section 1128(b)(7) of the Act (42 U.S.C. 1320a–7(b)(7)).

Because the statute, on its face, is so broad, concern has been expressed for many years that some relatively innocuous commercial arrangements may be subject to criminal prosecution or administrative sanction. In response to the above concern, section 14 of the Medicare and Medicaid Patient and Program Protection Act of 1987, Public Law 100–93 § 14, specifically required the development and promulgation of regulations, the so-called ''safe harbor'' provisions, specifying various payment and business practices that, although potentially capable of inducing referrals of business reimbursable under Federal health care programs, would not be treated as criminal offenses under the anti-kickback statute and would not serve as a basis for administrative sanctions. OIG safe harbor provisions have been developed ''to limit the reach of the statute somewhat by permitting certain non-abusive arrangements, while encouraging beneficial and innocuous arrangements'' (56 FR 35952, July 29, 1991). Health care providers and others may voluntarily seek to comply with these provisions so that they have the assurance that their business practices will not be subject to liability under the anti-kickback statute or related administrative authorities. OIG safe harbor regulations are found at 42 CFR part 1001.

B. OIG Special Fraud Alerts

OIG periodically issues Special Fraud Alerts to give continuing guidance to health care providers with respect to practices OIG considers to be suspect or of particular concern. The Special Fraud Alerts encourage industry compliance by giving providers guidance that can be applied to their own practices. OIG Special Fraud Alerts are published in the **Federal Register** and on our website and are intended for extensive distribution.

In developing Special Fraud Alerts, OIG relies on a number of sources and consults directly with experts in the subject field, including those within OIG, other agencies of the U.S. Department of Health and Human Services (the Department), other Federal and State agencies, and those in the health care industry.

C. Section 205 of the Health Insurance Portability and Accountability Act of 1996

Section 205 of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), Public Law 104–191 § 205 (the Act), § 1128D, 42 U.S.C. 1320a–7d, requires the Department to develop and publish an annual notification in the **Federal Register** formally soliciting proposals for modifying existing safe harbors to the anti-kickback statute and for developing new safe harbors and Special Fraud Alerts.

In developing safe harbors for a criminal statute, OIG thoroughly reviews the range of factual circumstances that may fall within the proposed safe harbor subject area so as to uncover potential opportunities for fraud and abuse. Only then can OIG determine, in consultation with the U.S. Department of Justice, whether it can effectively develop regulatory limitations and controls that will permit beneficial and innocuous arrangements within a subject area while, at the same time, protecting Federal health care programs and their beneficiaries from abusive practices.

II. Solicitation of Additional New Recommendations and Proposals

In accordance with the requirements of section 205 of HIPAA, OIG last published a **Federal Register** solicitation notification for developing new safe harbors and Special Fraud Alerts on December 28, 2016 (81 FR 95551). As required under section 205 of the Act, a status report of the proposals OIG received for new and modified safe harbors in response to that solicitation notification is set forth in Appendix F of OIG's Fall 2017 *Semiannual Report to Congress.*[1] OIG is not seeking additional public comment on the proposals listed in Appendix F at this time. Rather, this notification seeks additional recommendations regarding the development of new or modified safe harbor regulations and new Special Fraud Alerts beyond those summarized in Appendix F.

A detailed explanation of justifications for, or empirical data supporting, a suggestion for a safe harbor or Special Fraud Alert would be helpful and should, if possible, be included in any response to this solicitation.

A. Criteria for Modifying and Establishing Safe Harbor Provisions

In accordance with section 205 of HIPAA, we will consider a number of factors in reviewing proposals for new or modified safe harbor provisions, such as the extent to which the proposals would affect an increase or decrease in:

- Access to health care services,
- the quality of health care services,
- patient freedom of choice among health care providers,
- competition among health care providers,
- the cost to Federal health care programs,
- the potential overutilization of health care services, and
- the ability of health care facilities to provide services in medically underserved areas or to medically underserved populations.

In addition, we will consider other factors, including, for example, the existence (or nonexistence) of any potential financial benefit to health care professionals or providers that may take into account their decisions whether to (1) order a health care item or service or (2) arrange for a referral of health care items or services to a particular practitioner or provider.

B. Criteria for Developing Special Fraud Alerts

In determining whether to issue additional Special Fraud Alerts, we will consider whether, and to what extent, the practices that would be identified in a new Special Fraud Alert may result in any of the consequences set forth above, as well as the volume and frequency of the conduct that would be identified in the Special Fraud Alert.

Dated: December 12, 2017.

Daniel R. Levinson,

Inspector General.

[FR Doc. 2017–27117 Filed 12–26–17; 8:45 am]

BILLING CODE 4152–01–P

[1] The OIG *Semiannual Report to Congress* can be accessed through the OIG website at *http://oig.hhs.gov/publications/semiannual.asp.*

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–HQ–ES–2017–0047; 4500090024]

RIN 1018–BC83

Endangered and Threatened Wildlife and Plants; Listing the Yangtze Sturgeon as an Endangered Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a proposed rule and a 12-month finding on a petition to list the Yangtze sturgeon (*Acipenser dabryanus*) as an endangered species under the Endangered Species Act of 1973, as amended (Act). Loss of individuals due to overharvesting on the Yangtze River is the main factor that contributed to the historical decline of the species. Despite conservation efforts, this species is still currently in decline due primarily to the effects of dams and bycatch. If we finalize this rule as proposed, it would extend the Act's protections to this species. We seek information from the public on this proposed rule and the status review for this species.

DATES: We will consider comments and information received or postmarked on or before February 26, 2018. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by February 12, 2018.

ADDRESSES: *Document availability:* This finding is available on the internet at *http://www.regulations.gov* at Docket No. FWS–HQ–ES–2017–0047.

Written comments: You may submit comments by one of the following methods:

(1) Electronically: Go to the Federal eRulemaking Portal: *http://www.regulations.gov.* In the Search box, enter FWS–HQ–ES–2017–0047, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on "Comment Now!"

(2) By hard copy: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–HQ–ES–2017–0047; U.S. Fish and Wildlife Service, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (see *Public Comments,* below, for more information).

FOR FURTHER INFORMATION CONTACT: Janine Van Norman, Branch of Foreign Species, Ecological Services, U.S. Fish and Wildlife Service, MS: ES, 5275 Leesburg Pike, Falls Church, VA 22041–3803; telephone, 703–358–2171; facsimile, 703–358–2499. If you use a telecommunications device for the deaf (TDD), call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Information Requested

Public Comments

Our intent, as required by the Act (16 U.S.C. 1531 *et seq.*), is to use the best available scientific and commercial data as the foundation for all endangered and threatened species classification decisions. Further, we want any final rule resulting from this proposal to be as accurate and effective as possible. Therefore, we invite the range country, governmental agencies, the scientific community, industry, and other interested parties to submit comments regarding this proposed rule. Comments should be as specific as possible.

Before issuing a final rule to implement this proposed action, we will take into account all comments and any additional relevant information we receive. Such communications may lead to a final rule that differs from our proposal. For example, new information or analysis may lead to a threatened status instead of an endangered status for this species, or we may determine that this species does not warrant listing based on the best available information when we make our determination. All comments, including commenters' names and addresses, if provided to us, will become part of the administrative record. For this species, we particularly seek comments concerning:

(1) The species' biology, ranges, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to the species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status, range, distribution, and population size of the species, including the locations of any additional populations of the species.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via *http://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *http://www.regulations.gov.*

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov,* or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Headquarters Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearing

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received by the date listed above in **DATES**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we solicited the expert opinion of six appropriate and independent specialists for peer review of the Species Status Assessment (SSA) that provides the biological basis for this proposed listing determination. The purpose of peer review is to ensure that our listing determinations are based on scientifically sound data, assumptions, and analyses. Their comments and suggestions can be found at (*https://www.fws.gov/endangered/improving_ESA/peer_review_process.html*).

Previous Federal Actions

On March 12, 2012, the National Marine Fisheries Service (NMFS) received a petition dated March 8, 2012, from WildEarth Guardians and Friends of Animals to list as endangered or threatened under the Act the following 15 sturgeon species: Adriatic sturgeon (*Acipenser naccarii*); Baltic sturgeon (*A. sturio*); Russian sturgeon (*A. gueldenstaedtii*); ship sturgeon (*A. nudiventris*); Persian sturgeon (*A. persicus*); stellate sturgeon (*A. stellatus*); Siberian sturgeon (*A. baerii*); Yangtze sturgeon (*A. dabryanus*); Chinese sturgeon (*A. sinensis*); Sakhalin sturgeon (*A. mikadoi*); Amur sturgeon (*A. schrenckii*); Kaluga sturgeon (*Huso dauricus*); Syr Darya sturgeon (*Pseudoscaphirhynchus fedtschenkoi*); dwarf sturgeon (*P. hermanni*); and Amu Darya sturgeon (*P. kaufmanni*). The petition states that all 15 petitioned sturgeon species are affected by similar threats, which are primarily: Legal and illegal harvest for meat and/or roe; habitat loss and degradation, including dams or dam construction; and water pollution. The petition is available at *https://www.regulations.gov/document?D=FWS-HQ-ES-2013-0051-0003.*

NMFS acknowledged receipt of this petition in a letter dated April 14, 2012, and informed the petitioners that NMFS would determine, under section 4 of the Act, whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted. Although the petition was initially sent to NMFS, as a result of subsequent discussions between NMFS and the Service regarding the August 28, 1974, Memorandum of Understanding pertaining to ''Jurisdictional Responsibilities and Listing Procedures Under the Endangered Species Act of 1973,'' we have determined that 10 of the 15 petitioned sturgeon species are within the jurisdiction of the Service. Therefore, in April 2012, the Service notified WildEarth Guardians that we have jurisdiction over the 10 sturgeon species, listed below.

On September 24, 2013, we published in the **Federal Register** (78 FR 58507) a 90-day finding that found that the petition presented substantial scientific and commercial information indicating that the petitioned action may be warranted for the following 10 sturgeon species included in the petition: Siberian sturgeon (*Acipenser baerii*), Yangtze sturgeon (*A. dabryanus*), Russian sturgeon (*A. gueldenstaedtii*), ship sturgeon (*A. nudiventris*), Persian sturgeon (*A. persicus*), Amur sturgeon (*A. schrenckii*), stellate sturgeon (*A. stellatus*), Syr-Darya sturgeon (*Pseudoscaphirhynchus fedtschenkoi*), dwarf sturgeon (*P. hermanni*), and Amu Darya sturgeon (*P. kaufmanni*). This document constitutes our review and determination of the status of the Yangtze sturgeon, our publication of our 12-month finding on this species, and our proposed rule to list this species.

Background

A thorough review of the taxonomy, life history, ecology, and overall viability of the Yangtze sturgeon is presented in the Species Status Assessment (SSA) for the Yangtze sturgeon (Service 2017; available at *http://www.regulations.gov* at Docket No. FWS–HQ–ES–2017–0047). The SSA documents the results of the comprehensive biological status review for the Yangtze sturgeon and provides an account of the species' overall viability through forecasting of the species' condition in the future (Service 2017, entire). In the SSA, we summarize the relevant biological data and a description of past, present, and likely future stressors and conduct an analysis of the viability of the species. The SSA provides the scientific basis that informs our regulatory decision regarding whether this species should be listed as an endangered or threatened species under the Act. This decision involves the application of standards within the Act, its implementing regulations, and Service policies (see Determination, below). The SSA contains the risk analysis on which this determination is based, and the following discussion is a summary of the results and conclusions from the SSA. We solicited peer review of the draft SSA from six qualified experts. We received responses from one of the reviewers, and we modified the SSA as appropriate.

Species Description

The Yangtze sturgeon is a freshwater fish species that attains a maximum size of around 130 centimeters (4.3 feet (ft)) and a maximum weight of about 16 kilograms (35 pounds) (Billiard and Lecointre 2000, p. 368; Zhuang *et al.* 1997, pp. 257, 259). The species has a triangular head, an elongated snout, and large blowholes (Gao *et al.* 2009b, p. 117). Yangtze sturgeons have tactile barbels at the front of their mouths that they use to dig for food. On the dorsal side, the Yangtze sturgeons are dark gray, brownish-gray, or yellow-gray in color. The rest of the body is milky white in color (Zhuang *et al.* 1997, p. 259).

Taxonomy

Historically, the Yangtze sturgeon coexisted alongside the Chinese sturgeon in the Yangtze River. Initial attempts to differentiate the two species included using morphological measures. However, morphological characteristics can be influenced by differences in environmental conditions. For example, wild Yangtze sturgeon display grey color on the sides of their bodies while those bred in captivity sometimes display a darker color (Li *et al.* 2015, p. 186).

Due to similarities in their morphology, the two sturgeons were not identified as separate species until 1869, based on collection of specimens obtained from the Yangtze River (Zhuang *et al.* 1997, p. 257). Multiple studies since have shown the Yangtze and Chinese sturgeons are very closely related and can be considered to be sister species (Krieger *et al.* 2008, p. 41; Zhu *et al.* 2008, p. 32; Zhang *et al.* 2000, p. 136). A study of mitochondrial DNA found that Yangtze and Chinese sturgeon have a divergence value of 0.3 percent. This is in contrast to Chinese sturgeon and starry sturgeon (*Acipenser stellatus*), which have a divergence value of 7.7 percent (Zhang *et al.* 2000, pp. 133–134). While these results suggest that Yangtze and Chinese sturgeon are closely related species, taxonomic confusion regarding the two species continued well into the 1960s (Li J. *et al.* 2015, p. 186). In addition to genetic similarities, Yangtze and Chinese sturgeon share the same habitat and multiple studies suggest that Yangtze sturgeon may be a landlocked ecotype of the Chinese sturgeon (Kynard 2016, pers. comm.; Li J. *et al.* 2015, p. 186; Krieger *et al.* 2008, p. 42; Zhang *et al.* 2000, p. 136).

Despite similarities between Yangtze and Chinese sturgeon, there are differences between the two species.

Yangtze and Chinese sturgeon can be differentiated by the different ecoregion they inhabit. The Chinese sturgeon is an anadromous species (species that spawn in freshwater and spend most of its life at sea) that migrates between coastal feeding grounds and spawning grounds in both the Yangtze River and the Pearl River. On the other hand, the Yangtze sturgeon is a potamodromous species (a species that conducts its entire life cycle in freshwater) that migrates between feeding grounds and spawning grounds entirely within the Yangtze River basin (Kynard *et al.* 2003, p. 28; Zhuang et al. 1997, pp. 257–295).

In addition to differences in their life history, these two species can also be differentiated based on their mitochondrial and nuclear DNA (Li J. *et al.* 2015, pp. 185, 194). Therefore, despite possessing morphological and genetic similarities, there are differences in the habitat, life history characteristics, and genetic makeup between the two species. We thus accept the Yangtze sturgeon as a separate species as classified below:

Class: Actinopterygii
Order: Acipenseriformes
Family: Acipenseridae
Species: *Acipenser dabryanus* Duméril, 1869

Biology and Life History

Although the Yangtze sturgeon's life history is similar to other sturgeon species, there are key differences. Based on the best available information, much of what is known about the Yangtze sturgeon's life history comes from research on the more numerous and studied Chinese sturgeon due to similarities in morphology, taxonomy, and life history between the two species. Yangtze sturgeons spawn in the spring from March to April, with a smaller late fall/early winter spawning period occurring from October to December (Qiwei 2010, p. 3; Gao *et al.* 2009b, p. 117; Kynard *et al.* 2003, p. 28). Spawning migration begins when water level, flow velocity, and silt content enters a downward trend (Zhang H. *et al.* 2012, p. 4).

At the spawning site, female Yangtze sturgeons can lay between 57,000 to 102,000 eggs. These eggs, when mature, are gray to black and range from 2.7 to 3.4 millimeters (0.11 to 0.13 inches) in diameter. The eggs are sticky and firmly adhere to the space between pebbles and boulders, known as the ''interstitial'' space, on the riverbed (Gao *et al.* 2009b, p. 117; Zhuang *et al.* 1997, p. 261). Larvae emerge from the eggs about 115 to 117 hours after fertilization, and they remain at the spawning ground for around 12 to 30 days before dispersing downstream (Kynard *et al.* 2003, pp. 33–34; Zhuang *et al.* 1997, p. 262). Yangtze sturgeons do not start their migration downriver until they become juveniles.

Juvenile sturgeons disperse around 100 to 200 kilometers (km) (62 to 124 miles (mi)) downstream from their spawning ground and arrive in backwater pools and sandy shallows with low velocity flow and rich mud and sand substrate where they feed on insects, aquatic plants, and small fish (Zhang *et al.* 2011, p. 184; Zhuang *et al.* 1997, p. 259). During the spring flood on the main stem of the Yangtze River, juveniles will move to the tributaries to feed. Young sturgeons will remain in these feeding reaches until they reach maturity (4 to 6 years for males and 6 to 8 years for females) after which they begin migrating upstream towards the spawning ground during the spring flood (Zhuang *et al.* 1997, p. 261).

Habitat

The Yangtze sturgeon is found in sandy shoal with silt ground and gentle to moderate water flow (Bemis and Kynard 1997, p. 169; Zhuang *et al.* 1997, p. 259). The spawning habitat for the Yangtze sturgeon is a riverbed that contains larger boulders, pebbles, clear water with a velocity of 1.2 to 1.5 meters (m) per second (3.9 to 4.9 ft per second), and a depth of 5 to 15 m (16 to 49 ft) (Zhuang *et al.* 1997, p. 261). The presence of large boulders ensures there is sufficient interstitial space between the rocks for eggs to adhere to. At the same time, smaller pebbles and gravel fill in the interstitial space so that water flowing through the space is not too high to prevent adherence (Du *et al.* 2011, p. 257). Sufficient velocity is also needed to prevent excess buildup of gravel in the interstitial space (Du *et al.* 2011, p. 262). If there is insufficient interstitial space, eggs will not adhere to the boulders on the riverbed. If there is too much space, the water current will be too strong and the eggs will be washed away. Therefore, suitable sturgeon habitat has specific requirements for velocity and riverbed composition to ensure successful spawning.

Distribution

Historical Range

As its name implies, the Yangtze sturgeon is found in the Yangtze River (Wu *et al.* 2014, p. 5). The river is more than 6,397 km (3,975 mi) in length and is divided into three segments. The upper reach, which span a total of about 4,300 km (2,671 mi), is further subdivided into two segments: the Jinsha River segment, which stretches from the headwater in Yushu in the Tibetan Plateau to Yibin, a distance of about 2,300 km (1,429 mi), and the upper Yangtze River, which stretches from Yibin to the Three Gorges region at Yichang, a distance of about 1,000 km (621 mi) (Cheng *et al.* 2015, p. 571; Jiang *et al.* 2008, p. 1471; Fu *et al.* 2003, p. 1651). Four major tributaries feed into the upper Yangtze. They are: the Min, Tuo, Jialing, and the Wu River (Chen Z. *et al.* 2001, p. 78). The middle reach is from Yichang to Hukou, a distance of about 950 km (590 mi). The Yangtze River widens in this segment and is identified by multiple large lakes, including Lake Dongting and Lake Poyang. The lower reach stretches from Hukou to the mouth of the river at Shanghai, a distance of about 930 km (577 mi) (Fu *et al.* 2003, p. 1651).

Historically, the Yangtze sturgeon was found in the lower portion of the Jinsha River and the upper, middle, and lower reaches of the Yangtze River, a distance of about 1,300 km (807 mi) (Wu *et al.* 2014, p. 5). The majority of historical sightings occurred in the lower Jinsha and upper Yangtze River with occasional sightings in the middle and lower Yangtze (Zhuang *et al.* 1997, p. 259). The species has also been found in major tributaries that feed into the upper Yangtze including the Min, Tuo, and Jialing (Artyukhin *et al.* 2007, p. 370). There have also been sightings of the species in Dongting Lake and Poyang Lake in the middle and lower reaches, respectively (Zhuang *et al.* 1997, p. 259). One sighting took place as far downstream as Anhui province, a distance of more than 2,000 km (1,242 mi) downstream from Yibin (Zhuang *et al.* 1997, p. 261). The species' spawning reach is understood by Yangtze sturgeon researchers to have occurred from Maoshui in the lower Jinsha River to Hejiang in the upper Yangtze River (Zhang *et al.* 2011, p. 184).

Current Range

The Yangtze sturgeon's current range is limited to the upper Yangtze River and its tributaries in the reaches between Yibin and Yichang, a distance of about 1,000 km (Wu *et al.* 2014, p. 5; Dudgeon 2010, p. 128; Huang *et al.* 2011, p. 575; Zhang *et al.* 2011, p. 181; Artyukhin *et al.* 2007, p. 370). The completion of the Gezhouba Dam in 1981 at Yichang prevented the upstream migration of adults to the species' spawning ground (Zhuang *et al.* 1997, p. 261). As a result of the construction of Gezhouba Dam, the species may have been extirpated in reaches below the dam (Li *et al.* 2015, p. 186; Zhu *et al.* 2008, p. 30). That said, from 2014–2017, fishermen below Gezhouba Dam accidently captured four adult Yangtze sturgeons, suggesting the presence of a very small remnant population (Du 2017, pers. comm.). Due to Gezhouba Dam's smaller size, the reservoir for the Gezhouba Dam is relatively small (Kynard 2017, pers. comm.) However, the Three Gorges Dam, located slightly upstream from Gezhouba Dam, and its reservoir changed the hydrology of the Yangtze. Construction on the Three Gorges Dam began in 2003 and was completed in 2009. The reservoir, which extends 600 km (372 mi) upstream, further reduced the species' range by modifying reaches above Three Gorges Dam to a lentic (still water) system (Chen D. *et al.* 2009, p. 341; Fu *et al.* 2003, p. 1650). Loss of lotic (rapidly moving water) ecosystem reduces the quality of remaining habitat for the species (Kynard 2016, pers. comm.; Cheng *et al.* 2015, pp. 570, 576). On the lower Jinsha River, in the upstream portion of the species' historical range, the construction of the Xiangjiaba Dam, which was completed in 2008, limited the species' spawning ground to areas below the dam (Zhang *et al.* 2011, pp. 183–184). The species continues to ascend the major tributaries in the upper Yangtze, including the Min, Tuo, and Jialing River (Huang *et al.* 2011, p. 575; Artyukhin *et al.* 2007, p. 370).

Historical and Current Population

The Yangtze sturgeon was historically abundant and was commercially harvested up to the 1970s (Lu *et al.* 2015, p. 89; Zhang *et al.* 2013, p. 409; Kynard *et al.* 2003, p. 27). The majority (80 percent) of harvest of Yangtze sturgeon took place during the 1950s to the 1970s. However, overharvesting during this time period led to a sharp decline in the population size (Kynard *et al.* 2003, p. 27).

While there may have been natural recruitment of the species in the 1990s, no natural recruitment has been observed in the wild since the 2000s (Du *et al.* 2014, p. 1; Wu *et al.* 2014, p. 1). The population is currently being sustained by artificial restocking. Between the years of 2010–2013, 7,030 Yangtze sturgeon juveniles were released into the middle and upper Yangtze River in two to three batches each year (Wu *et al.* 2014, p. 3). Restocking efforts have been ongoing in the reaches below Gezhouba Dam since 2014 (Hu 2017, pers. comm.). However, restocked sturgeons suffer from low fitness; most notably, they lack the ability to survive to reproductive age. Capture data obtained from the releases in 2010–2013 found that 95 days after restocking, no restocked sturgeons were caught either by researchers or by fishermen in the upper Yangtze River (Wu *et al.* 2014, pp. 3–5). These results indicate that restocked sturgeon have a very low survival rate. Although we do not have population estimates for the species, based on the fact that there has been no observable natural reproduction since the 2000s and the low survival rate of restocked sturgeon, the species population in the Yangtze River is likely to be very low when compared to historical numbers (Du *et al.* 2014, p. 1; Wu *et al.* 2014, p. 4).

Summary of Threats and Conservation Measures That Affect the Species

The Act directs us to determine whether any species is an endangered species or a threatened species because of any factors affecting its continued existence. We completed a comprehensive assessment of the biological status of the Yangtze sturgeon, and prepared a report of the assessment, which provides a thorough account of the species' overall viability. In this section, we summarize the conclusions of that species status assessment, which can be accessed at Docket No. FWS–HQ–ES–2017–0047 on *http://www.regulations.gov.*

Dams on the Yangtze River and Its Effects

The topography of the upper Yangtze River basin is characterized by mountains of varying heights. The change in elevation between the upper Yangtze to the lower Yangtze amounts to 3,280 m (10,761 ft), which makes the upper Yangtze River an ideal place for hydroelectric projects (Fan *et al.* 2006, p. 33). The growth of dam construction in China has accelerated during the past decades. From the 1970s to the 1990s, an average of 4.4 large reservoirs (capacity greater than 0.1 km^3) were constructed per year. By the 2000s, this number had increased to an average construction rate of 11.8 large reservoirs per year. By 2011, China possessed 552 large reservoirs, 3,269 medium reservoirs (capacity of 0.01–0.1 km^3), and 84,052 small reservoirs (capacity of 0.0001–0.01 km^3); of this number, the Yangtze River basin contained 45,000 dams and reservoirs, including 143 dams having large reservoirs, or a quarter of all large reservoirs in China (Miao *et al.* 2015, p. 2350; Mueller *et al.* 2008, p. 233). The construction of dams and reservoirs have multiple and broad effects on the Yangtze sturgeon and its habitat, including limiting connectivity between spawning and feeding reaches; altering water temperature, water discharge, and velocity rates; and changing sediment concentration.

Connectivity

Dam construction on Yangtze River limits the ability of the Yangtze sturgeon to migrate between spawning and feeding reaches. Dam construction on the Yangtze occurs on both the upper and lower end of the species' current range. In the middle Yangtze River, the construction of Gezhouba Dam in 1981 prevented migration of adults downstream of the dam from being able to migrate to the species' spawning ground in the upper Yangtze near Yibin (Miao *et al.* 2015, p. 2351; Dudgeon 2010, p. 128; Fang *et al.* 2006, p. 375; Zhuang *et al.* 1997, p. 261). Although the reaches below Gezhouba Dam might be suitable for the species, at present there has been no observed natural reproduction below Gezhouba Dam (Du 2017, pers. comm.). The construction of Three Gorges Dam created a reservoir, which affected individuals of the species upstream. The Three Gorges Dam reservoir, which extended 600 km upstream from the dam, transformed the area into unsuitable habitat (Kynard 2016, pers. comm.; Cheng *et al.* 2015, p. 570; Miao *et al.* 2015, p. 2351). After the construction of the reservoir, the species rarely moves to reaches below Chongqing, a distance of approximately 500 km (Wu *et al.* 2015, p. 5).

Meanwhile, the construction of Xiangjiaba Dam on the lower Jinsha River segment occurred on part of the historical spawning reach of the species. Xiangjiaba Dam is a barrier to all fish species and prevents the migration to areas above or the below the dam (Wu *et al.* 2014, p. 2). However, the species may be able to use spawning reaches below the dam (Fan *et al.* 2006, p. 36). That said, a dam located upstream from the species' habitat affects the species downstream by altering water temperature and sedimentation rate, which we discuss below (Fan *et al.* 2006, p. 36).

In addition to dams currently present on the lower Jinsha and upper Yangtze River, in the early 2000s, a proposal was presented for the construction of the Xiaonanhai Dam, which is to be located upstream from Chongqing. If built, this dam will create a barrier between the species' last known spawning ground and feeding reach, which, depending on design, could have a negative impact on the species (Cheng *et al.* 2015, p. 579). However, at present, China's Ministry of Environmental Protection has rejected the proposal and any future dam projects on the last stretch of free-flowing Yangtze River due to environmental impacts (Chang 2016, pers. comm.; Kynard 2016, pers. comm.; Mang 2015, unpaginated).

While the rejection of the proposal to construct the Xiaonanhai Dam is good for Yangtze sturgeon, the country's twelfth 5-year plan stated that renewable resources should make up 15 percent of all energy generated in China with 9 percent coming from hydroelectric source. This plan translates to an additional 230 gigawatt (GW) of power generated via hydroelectric dam. This target is a very ambitious one, given that Three Gorges Dam generates 18 GW of power per year (Dudgeon 2011, p. 1496). Furthermore, although the plan to construct the Xiaonanhai Dam has been rejected, plans to construct dams on the Jinsha River as part of a 12-dam cascade are still proceeding (Dudgeon 2010, p. 129).

Water Temperature

Historically, dams negatively affect the reproductive success of Yangtze sturgeon by altering water temperature flowing through the species' habitat. Water temperature influences the reproductive success of the Yangtze sturgeon at two stages in its life cycle: Commencement of spawning migration and egg survival. Spawning migration of the Yangtze sturgeon will not start until the water temperatures reach 18 degrees Celsius (°C) (64.4 degrees Fahrenheit (°F)) (Cheng *et al.* 2015, p. 578). Historically, before the construction of the Xiangjiaba and other dams on the lower Jinsha, water temperature reached 18 °C (64.4 °F) around April. However, the construction of the dams stratified the water table. As most dams on the Yangtze are designed to release cold water located at the bottom of the dams, the spawning season for the Yangtze sturgeon could be delayed by more than a month (Deng *et al.* 2006 and Wang *et al.* 2009, as cited in Cheng *et al.* 2015, p. 578). This delay shortens the maturing season for juveniles and is likely to reduce the species' survival rate. Additionally, if the water remains too cold for too long, sturgeon eggs will not mature, resulting in total loss of reproduction for that season (Kynard 2016, pers. comm.).

Water Discharge and Velocity

By altering discharge rates, dams affect the Yangtze sturgeon's reproductive success by affecting the timing of spawning migration. The species' spawning migration begins when flow rate increases during the spring flood (Zhuang *et al.* 1997, p. 261). At Yichang, the most downstream portion of the Yangtze sturgeon's current range, the mean discharge rate from 1983 to 2004 (before the construction of Three Gorges Dam) was between 10,000 m^3/s and 17,000 m^3/s. After the construction of the Three Gorges Dam, mean flow rate varies between 12,780 m^3/s in high flow years and 6,414 m^3/s in low flow years (Chen and Wu 2011, p. 384). For Chinese sturgeon, successful spawning occurs when water discharge is between 7,000 and 26,000 m^3/s. This means that although flow rate during high flow years remains in the optimal discharge rate for Chinese sturgeon spawning, discharge rates during low flow years could have a negative impact on spawning success rates of both sturgeon species (Chen and Wu 2011, p. 385).

While we do not have long-term historical data for water discharge rate for the Yangtze sturgeon at Yibin, the flow rate at Chongqing during the years 1950–2000 was between 4,540 m^3/s and 11,000 m^3/s (Zhang *et al.* 2011, p. 183). Since Chongqing is farther upstream from Yichang, this flow rate may be the river's natural rate at this section of the Yangtze. However, following the impoundment by the Xiangjiaba Dam in October 2012 and the Xiluodo Dam in May 2013, discharge in the lower Jinsha has declined more than 50 percent, suggesting that current flow rate is likely to be lower than the flow rate between 1950 and 2000 (Cheng et al 2015, p. 577). The Jinsha River feeds into the upper Yangtze River. This means that reduction in flow rate on the Jinsha will also reduce the flow rate on the upper Yangtze River. Given that the Yangtze sturgeon is closely related to the Chinese sturgeon, a reduction of flow rate by over 50 percent could have a significant negative impact on the reproductive success rate of the Yangtze sturgeon given its already tenuous biological status.

Sedimentation Concentration

In addition to affecting spawning of Yangtze sturgeon, dams affect the condition of the species' spawning ground through changes in the water velocity and sedimentation load. Because reproductive success of sturgeon is tied to the amount of suitable habitat, a reduction in habitat area can reduce the reproductive success of the species (Ban *et al.* 2011, p. 96; Bemis and Kynard 1997, p. 169). Specifically, flow rates affect the Yangtze sturgeon by affecting the sedimentation concentration in the water and on the riverbed. As noted before, Yangtze sturgeon lay their eggs on the interstitial spaces between rocks and boulders. The makeup of the riverbed needs to contain the right concentration of small pebbles and larger boulders to provide sufficient space for adherence and aeration of the eggs (Du *et al.* 2011, pp. 261–262; Bemis and Kynard 1997, p. 169).

Historically, discharge rates and sedimentation load were in alignment with precipitation rates. A low discharge rate results in low sedimentation load. High discharge rates lead to higher sediment load, as high flows are able to transport more sediments downstream (Chen Z. *et al.* 2001, pp. 88–89). However, dams cause discharge and sedimentation rates to go out of alignment. While discharge rates remain aligned with precipitation rate, the sedimentation load pattern displays a 2-month delay due to sediment being trapped behind the dams. When the spring flood occurs, numerous dams release highly concentrated sediment downstream all at once, resulting in an asymmetrical sediment load pattern (Chen Z. *et al.* 2001, p. 90). The effects of sediment load patterns on the species' habitat occur at two stages: Release of sediments during high river stages and reduced sediment size and load over time (Dudgeon 2011, pp. 1488, 1495).

The Jinsha River dams trap up to 82 percent of the sediment during the winter months, resulting in ''clean'' (*i.e.,* sediment-free) water flowing downstream. This ''clean'' water lacks nutrients and may decrease the food supply of the Yangtze sturgeon over the winter months (Cheng *et al.* 2015, p. 578). During the subsequent spring flood, the release of concentrated sediment by dams likely results in sediments filling in all the interstitial spaces in spawning habitat, thereby reducing available spawning habitat for that season.

Despite the spring release of concentrated sediments, sediment load is expected to decline over time. At Yichang, sediment load per year has decreased from 530 mega tons (Mt) per year in the 1950s–1960s, to 60 Mt per year after 2003. Additionally, suspended sediment at Yichang below Three Gorges Dam has decreased in size from 8–10 micrometers in 1987–2002 to 3 micrometers after 2003 (Yang *et al.* 2011, pp. 16–17). Reduction in sediment size can lead to increased embeddedness of available interstitial space. At the reaches below Gezhouba Dam, sedimentation has reduced available interstitial space by up to 50 to 70 percent (Du *et al.* 2011, p. 262). This prevents the adherence of eggs to the river bottom and reduces the quality of remaining spawning habitats.

Summary of Effects of Dams on the Yangtze Sturgeon

Dam construction in the middle Yangtze and lower Jinsha has restricted the species' range to the reaches of the Yangtze between Yibin and Yichang (Wu *et al.* 2014, p. 5). These projects prevented the migration of the species upstream and downstream of the dams. Although there is currently access between the species' remaining spawning and feeding grounds, the condition of remaining habitat is likely to be negatively affected by changes to the river flow and sedimentation rate. The formation of the Three Gorges reservoir has transformed the 600-km reach above the dam into a lentic system, resulting in unsuitable habitat for the species (Kynard 2016, pers. comm.; Cheng *et al.* 2015, pp. 570, 576). As a result, Yangtze sturgeon rarely use habitat downstream from Chongqing (Wu *et al.* 2014, p. 5).

Upstream from the species' current range, the construction of the Xiluodu and Xiangjiaba Dam is likely to negatively affect the reproductive success of the Yangtze sturgeon. Through the release of cold water during the spring flood, the dam can delay the spawning migration of the sturgeon, which will either shorten the maturation time for juveniles or prevent the successful maturation of eggs altogether (Kynard 2016, pers. comm.; Cheng *et al.* 2015, p. 578). Alteration to sediment concentration in both the short term and long term reduces the quality of remaining habitat (Du *et al.* 2011, p. 262). Given the lack of observed natural reproduction of the species in the upper Yangtze, dams significantly affect the viability of the species.

Overfishing (historical) and Bycatch (current)

Historically, the Yangtze sturgeon was commercially harvested on the Yangtze River. In the 1960s, harvest of Yangtze sturgeon accounted for 10 percent of total harvest. In the 1970s, 5,000 kilograms (5.5 tons) of Yangtze sturgeons were caught in the spring season at Yibin (Zhuang *et al.* 1997, p. 262). Since then however, the population of Yangtze sturgeon has declined significantly (Zhang *et al.* 2013, p. 409). This decline is due to multiple reasons. Fishermen use fine mesh nets that prevent smaller fish, weighing as little as 50 grams (1.7 ounces), from being able to escape. The number of fishing boats increased from 500 in 1950s to 2,000 by 1985. More than 140,000 fishermen currently depend on the river for a living. Furthermore, the fishing season overlapped with the main spawning season of the Yangtze sturgeon (Yi 2016, p. 1; Fan *et al.* 2006, p. 37; Zhuang *et al.* 1997, p. 262). The replacement of bamboo and reed gear with gear made from synthetic fibers further contributed to a higher catch rate of sturgeons (Chen D. *et al.* 2009, p. 346).

Despite attempts to help conserve the species by restocking, restocked juveniles experience very low survival rates (Wu *et al.* 2014, p. 4). From 2010 to 2013, restocking operations released 7,030 juveniles into the upper Yangtze River main stem. Subsequent bycatch between 2010 and 2013 recorded a total of 112 sturgeons caught, indicating a very low survival rate of stocked juveniles (Wu *et al.* 2014, p. 3). These results suggest very low survivability of restocked sturgeon, and the subsequent impacts from bycatch are too high for the species to persist (Wu 2016, pers. comm.; Wu *et al.* 2014, p. 4).

Riverbed Modification

The Yangtze sturgeon requires river substrate to contain suitable concentration to reproduce successfully (Du *et al.* 2011, p. 257). Alteration to the riverbed has reduced the reproductive success of this species. To improve navigation on the lower Jinsha and upper Yangtze River, multiple projects, including sand and gravel extraction operations, were implemented on the reaches between Shuifu and Yibin and Yibin and Chongqing (Zhang *et al.* 2011, p. 184). Between 2005 and 2009, $44 million (converted to U.S. dollars) were invested to improve the navigation between Yibin and Chongqing. These investments have led to the modification of 22 riffles (a shallow section of a stream or river with rapid current and a surface broken by gravel, rubble or boulders) on the upper Yangtze and the deepening of the channel from 1.8 m (5.9 ft) to 2.7 m (8.8 ft) (Zhang *et al.* 2011, p. 184). Additionally, up to 10, 6, and 3 river dredge ships operate in the Yangtze River, the Jinsha River, and the Min River, respectively. The operations of these ships alters the bottom topography of the riverbeds, which results in the loss of benthic habitat and spawning ground for many fish species, including the Yangtze sturgeon (Fan *et al.* 2006, p. 37). These projects are occurring on or near current Yangtze sturgeon spawning and feeding grounds from Yibin to Hejiang. Thus these operations will continue to reduce the quality and quantity of remaining habitat (Zhang *et al.* 2011, p. 184).

Industrial Pollution

As a benthic predator, the Yangtze sturgeon is exposed to higher concentrations of industrial pollution than many other fish species (Yujun *et al.* 2008, pp. 341–342). While we are not aware of any studies that analyze the impacts of industrial pollution on Yangtze sturgeon specifically, there have been studies on Chinese sturgeon and other sturgeon species. Industrial pollutants such as triphenyltin (TPT) affect reproductive success of the Chinese sturgeon. TPT, used in paint on ship hulls and in fishnets in China, can be absorbed into the eggs of Chinese sturgeon, resulting in increased deformities including abnormal development and skeletal and morphological deformities in embryos (Hu *et al.* 2009, pp. 9339–9340).

A study on TPT exposure to 2- to 3-day-old Chinese sturgeon larvae found that 6.3 percent showed skeletal/morphological deformities and 1.2 percent had no eyes or only one eye. At the same time, larvae from spawning hatches of captured adults showed skeletal/morphological deformities of 3.9 percent and 1.7 percent that had only one eye or no eyes. Given the rate of deformities found in this study, the capability for the studied Chinese sturgeon to reproduce was reduced by 58.4 to 75.9 percent (Hu *et al.* 2009, p. 9342). Because the Yangtze and Chinese sturgeon are closely related species, the presence of TPT in the upper Yangtze River is likely reducing the reproductive success of the Yangtze sturgeon by a similar rate.

In addition to TPT, the presence of endocrine disruptors compound (EDC) affects Chinese sturgeon by inducing declining sperm activity, intersex testis-ova, and a decline in male to female ratio in the population (An and Hu 2006, p. 381). A study on EDC found that the concentration of EDC in the Yangtze River (1.55 to 6.85 micrograms per liter) is very high and could have a detrimental impact on sturgeon in the river. This result suggests that industrial discharge of EDC is occurring in the Yangtze.

As a result of rapid industrialization on the Yangtze River, higher concentration of heavy metals are found in the Yangtze River (Yujun *et al.* 2008, p. 338). High concentration of heavy metals leads to greater accumulation in all aquatic organisms (Yujun *et al.* 2008, p. 339). The toxicity effect of heavy metal accumulation is especially pronounced in zoobenthic predators, like the Yangtze sturgeon, because they occupy a higher position in the food chain. The result is that by consuming smaller prey species that have absorbed heavy metal, zoobenthic predator build up heavy metal accumulation inside their bodies (Yujun *et al.* 2008, p. 346). Given that heavy metal concentration is highest in benthic animals, especially zoobenthic predators like the sturgeon, the effect of heavy metals on the sturgeon could be more pronounced than other aquatic species (Yujun *et al.* 2008, p. 341; An and Hu 2006, p. 381). Despite the known impacts on captured Chinese sturgeon, we currently do not have evidence of population-level impacts of EDC or heavy metal on the wild Yangtze sturgeon population. That said, even though we have no evidence of morphological deformities in wild sturgeon, it is likely that industrial pollution does have an effect on the reproductive success of wild sturgeon.

Hybridization With Displaced Native and Nonnative Sturgeon

Despite decline in wild fishery yields, the Yangtze basin remains one of the major centers of China's aquaculture industry. Fishery yields from the basin accounts for 65 percent of total freshwater fisheries production in China (Shen *et al.* 2014, p. 1547; Chen D. *et al.* 2009, p. 338). In the past 30 years, sturgeon aquaculture in China has risen significantly. Although commercial aquaculturing of sturgeon only started in the 1990s, by 2006, production had reached 17,424 tons, which accounts for 80 percent of the world total production (Shen *et al.* 2014, p. 1548). The growth of the aquaculture industry in China saw aquaculture farms constructed across all branches of the Yangtze River (Li R. *et al.* 2009, p. 636). Sturgeon species that are commonly used in the aquacultural industry include *A. schrenckii, Huso dauricus,* and other Amur River sturgeon hybrids (Li R. *et al.* 2009, p. 636). However, none of these commonly cultured species are native to the Yangtze River. Additionally, there is a lack of regulation and enforcement of regulation to properly manage hybridization of sturgeon species. There is also the problem of aquaculture sturgeon escaping from sturgeon farms into the wider river system (Li R. *et al.* 2009, p. 636). The result is a comingling of native, exotic, and hybrid sturgeon species which could have a negative impact on the Yangtze sturgeon (Shen *et al.* 2014, p. 1549; Li R. *et al.* 2009, p. 636).

There is currently no native-strain farm (farm that raises native species) for sturgeons in China. Because no farms in China focus on raising native stock in large enough number, this system creates shortages of parental stock of native sturgeons. In response to this shortage, farmers crossbreed wild-caught sturgeon with any sturgeon species available including nonnative species (Xiong *et al.* 2015, p. 658; Li R. *et al.* 2009, p. 636). For example, in 2006, there was a shortage of Siberian sturgeon in China (*Acipenser baerii*). Farmers then started crossbreeding Siberian sturgeon with Russian sturgeon (*A. gueldenstaedtii*), Sterlet sturgeon (*A. ruthenus*), and Amur sturgeon (*A. schrenckii*) (Li R. *et al.* 2009, p. 636). Crossbreeding of sturgeon species in China alters the wild population makeup. A study on the lower Yangtze River in 2006 found that of the 221 young sturgeons captured, 153 were hybrids, which accounted for 69.9 percent of total sturgeons caught (Li R. *et al.* 2009, p. 636). This information indicates that farmed hybrids are escaping into the river system. Although this study was conducted in the lower Yangtze River, because sturgeon aquaculture occurs across the Yangtze River system, it is likely that hybridization is occurring in the upper Yangtze River as well.

The uncontrolled hybridization of native and nonnative species on the Yangtze alters the population dynamics between hybrids and native stocks. Hybridization may reduce the fitness of the overall population or replace a population of native fish with hybrids (Shen *et al.* 2014, p. 1549; Li R. *et al.* 2009, p. 636). Hybridization may also result in hybrids with better fitness than wild stock that outcompete wild native stock of Yangtze sturgeon for habitat and resources. When native fish are unavailable, farmers tend to import nonnative fish that have better characteristics, such as higher growth rate and better adaptability. These non-native sturgeons are bred with available native sturgeon to produce hybrids. These hybrids oftentimes escape or are accidentally introduced into the wild and then compete with the Yangtze sturgeon for resources (Xiong *et al.* 2015, pp. 657–658). Although hybridization is likely to be occurring all along the Yangtze River, we currently do not have information on the rates of hybridization of sturgeon in the upper Yangtze or how significant the effects are on the Yangtze sturgeon. That said, given that hybridized sturgeons make up 69.9 percent of sturgeons found in the studied area, it is likely that sturgeon hybrids are competing, and will likely continue to compete, with native stocks for habitat and resources throughout the Yangtze River system.

Management Efforts

As a result of overfishing and the construction of Gezhouba Dam in 1981, the population of Yangtze sturgeon has declined (Du *et al.* 2014, p. 1; Wu *et al.* 2014, p. 1; Zhang H. *et al.* 2011, p. 181). In response to the decline of the species, national and local officials have embarked on a number of initiatives to help conserve the species. These initiatives include increasing legal protection for the Yangtze sturgeon, creating and designating part of the species' range as a protected area, and repopulating the species in the wild through restocking (Zhang H. *et al.* 2011, p. 181; Fan *et al.* 2006, p. 35; Wei *et al.* 2004, p. 322).

Legal Protections

In response to the decline of the Yangtze sturgeon, in 1989, China's State Council added the Yangtze sturgeon to the National Red Data Book for Threatened Chinese Fish as a Class I Protected Animal (Wu *et al.* 2014, p. 1; Zhang H. *et al.* 2011, p. 181; Dudgeon 2010, p. 128; Wei *et al.* 2004, p. 322; Zhuang *et al.* 1997, p. 258). Animals listed as a Class I species are protected from certain activities, including hunting, capturing, or killing, for both commercial and personal uses. Scientific research, domestication, breeding, and exhibition are exempted (Wei *et al.* 2004, p. 322). Transportation of Class I-listed species requires approval from the Department of Wildlife Administration. Import or export of Class I aquatic species is regulated by the Fisheries Bureau of the Minister of Agriculture (Wei *et al.* 2004, p. 323).

In addition to its listing under national law, the species has also been included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1998 (Ludwig 2008, p. 5; CITES 1997, pp. 152–153). The CITES trade database has recorded no international trade of this species going as far back as 1975 (the oldest date on CITES database) (CITES 2017). International trade in CITES species is regulated via a permit system. Under Article IV of CITES, export of an Appendix-II specimen requires the prior grant and presentation of an export permit. Export permits for Appendix-II specimens are only granted if the Management Authority of the State of export is satisfied that the specimens were lawfully obtained and if the Scientific Authority of the State of export has advised that the trade is not detrimental to the survival of the species in the wild. For any living specimen, the Management Authority of the State of export must also be satisfied that the specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment. Re-export of an Appendix-II specimen requires the prior grant and presentation of a re-export certificate, which is only granted if the Management Authority of the State of re-export is satisfied that the specimen was imported into that State in accordance with CITES and, for any living specimen, that the specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment. Certain exemptions and other special provisions relating to trade in CITES specimens are also provided in Article VII of CITES. In the United States, CITES is implemented through the Act and regulations at 50 CFR part 23.

Additionally, since 2003, a fishing ban on all fish species has been implemented in the upper Yangtze River from February 1 to April 30. Starting in 2017, the fishing ban was extended from March to June (Du 2017, pers. comm.). One of the side effects of this ban is a reduction in the bycatch of Yangtze sturgeon since the time period of the ban coincides with the spawning season of the Yangtze sturgeon (Chen D. *et al.* 2012, p. 532; Chen D. *et al.* 2009, p. 348).

Despite the implementation of legal protection for the species, there are several shortcomings with the current regulatory mechanisms for the species. China currently does not have a specialized, dedicated agency to manage fisheries resources across the country. Riverine resource management is maintained at local levels which are often located in major population center, far away from the fishery resource (Chen D. *et al.* 2012, p. 541). In the case of Yangtze sturgeon, these different jurisdictions have variations in regulation and conservation goals for the Yangtze River ecosystem, which limits coordination of species-conservation efforts and the overall effectiveness in managing species conservation across the Yangtze River basin (Chen D. *et al.* 2012, p. 541).

In addition to a lack of a specialized body or other effective basin-wide conservation efforts, lack of funding is major problem for local jurisdictions. Enforcement officers often lack basic equipment, such as boats, to carry out fishing regulations within the fishery (Chen D. *et al.* 2012, p. 541). Additionally, while commercial harvesting of the species is prohibited, bycatch is still occurring and may still be too high to sustain a wild breeding population (Zhang H. *et al.* 2011, p. 184). The new fishing ban implemented in 2017 has the potential to reduce bycatch (Du 2017, pers. comm.). However, the positive effects from a fishing ban on the Yangtze may be limited, given the importance of the Yangtze to the economic well-being of riverside communities as entire stretches of the river cannot be closed off to fishing (Fan *et al.* 2006, p. 38).

Protected Areas

To offset the effects of habitat loss due to dams, China's State Department established in 2000 the National Reserve of Hejiang-Leibo Reaches of the Yangtze River for Rare and Endangered Fishes (Zhang H. *et al.* 2011, p. 181; Fan *et al.* 2006, p. 35). The reserve is located on the upper Yangtze River on the reaches between Xiangjiaba Dam and the city of Chongqing. This reserve is intended to protect three imperiled fish species, the Yangtze sturgeon, the Chinese paddlefish (*Psephurus gladius*), and the Chinese high-fin banded shark (*Myxocyprinus asiaticus*), as well as 37 other endemic fish species (Fan *et al.* 2006, p. 35). In 2005, the reserve was expanded to mitigate the impact from current and future hydroelectric projects (Zhang H. *et al.* 2011, pp. 181–182). While the reserve plays an important role in protecting wildlife within its borders, expansion of the hydroelectric project in the lower Jinsha River and upper Yangtze outside the protected area is likely to undermine the effectiveness of the reserve. In order to facilitate economic growth, China has decentralized authority for infrastructure development from the state to local municipalities. This decentralized model has resulted in provincial governments prioritizing economic growth over environmental impacts (Dudgeon 2011, p. 1496).

Since 2003, hydroelectric projects in China are subjected to environmental assessments and approval from the Ministry of Environmental Protection (Ministry) (Dudgeon 2011, p. 1496). However, this approval is routinely ignored even by nationally owned corporations. For example, in 2004, China Three Gorges Corporation (CTGC) began construction of the Xiluodu Dam in the Lower Jinsha without obtaining permission from the Ministry (Dudgeon 2011, pp. 1496–1497). In response, the Ministry suspended work on the dam in 2005. However, despite initial reservation about the lack of an environmental impact assessment, the Ministry quickly compiled reports and allowed the dam construction to proceed (Dudgeon 2011, p. 1499). Additionally, in 2009 the Ministry gave the authority to build two additional dams on the Jinsha segment to other dam construction companies after a brief suspension (Dudgeon 2010, p. 129). Overall, these temporary suspensions of construction have done little to slow down the pace of dam development. In 2011, CTGC began constructing the Xiangjiaba Dam on the Lower Jinsha. The location of this dam would have occurred within the 500-km boundary of the National Reserve of Hejiang-Leibo Reaches. The CTGC successfully petitioned the State Council to redraw the boundaries of the reserve to exclude the section of the river where the Xiangjiaba Dam is located (Dudgeon 2011, p. 1500; Dudgeon 2010, p. 129). The reserve, now renamed the National Natural Reserve Area of Rare and Special Fishes of the Upper Yangtze River, encompasses the reaches below the Xiangjiaba Dam from Yibin to Chongqing as well the tributaries that feed into the Yangtze (Zhang H. *et al.* 2011, p. 182; Fan *et al.* 2006, p. 35). The redrawing of the area of the reserve to accommodate the construction of Xiangjiaba Dam lends further evidence that local governments are prioritizing growth over environmental impacts. The construction of the Xiangjiaba Dam led to the impoundment of the reach upriver, which will affect the flow and sedimentation rate downstream (Cheng *et al.* 2015, p. 577; Dudgeon 2011, p. 1500). Given the lack of natural reproduction of the Yangtze sturgeon and future impacts from the dam, it is unlikely that the current boundary of the reserve will be sufficient to maintain a wild breeding population of this species (Kynard 2016, pers. comm.; Dudgeon 2011, p. 1500).

Restocking

As a result of the decline of the species, controlled reproduction and release of juvenile Yangtze sturgeon has occurred every year since 2007 (Zhang H. *et al.* 2011, p. 181). Between 2007 and 2012, more than 10,000 Yangtze sturgeon juveniles were released into the upper Yangtze on reaches downstream from Xiangjiaba Dam (Wu *et al.* 2014, p. 1). In 2014, restocking was started on the reaches below Gezhouba Dam (Du 2017, pers. comm.). While this number pales in comparison to the six million Chinese sturgeon that have been released since 1983, the restocking of the Yangtze sturgeon represent an attempt by local and state officials to try to maintain the species in the wild (Chen D. *et al.* 2009, p. 349).

Despite the efforts to restock the Yangtze sturgeon in the wild, current restocking efforts are unsuccessful (Wu *et al.* 2014, p. 4). No juveniles were caught 95 days after release, indicating that released sturgeon experienced a very high mortality rate (Wu *et al.* 2014, p. 4). There are multiple possible reasons for the limited success of current restocking efforts, including poor breeding and rearing techniques that result in progeny with low survival rates in the wild, high bycatch rate, and loss or deterioration of remaining habitats (Cheng *et al.* 2015, pp. 579–580; Du *et al.* 2014, p. 2; Shen *et al.* 2014, p. 1549; Zhang H. *et al.* 2011, p. 184). Thus, despite attempts to conserve the species in the wild through restocking, with all the other forces acting on the Yangtze sturgeon it is unlikely that current restocking efforts are adequate to improve the species' condition in the wild.

Stochastic (Random) Events and Processes

Species endemic to small regions, or known from few, widely dispersed locations, are inherently more vulnerable to extinction than widespread species because of the higher risks from localized stochastic (random) events and processes, such as industrial spills and drought. These problems can be further magnified when populations are very small, due to genetic bottlenecks (reduced genetic diversity resulting from fewer individuals contributing to the species' overall gene pool) and random demographic fluctuations (Lande 1988, p. 1455–1458; Pimm *et al.* 1988, p. 757). Species with few populations, limited geographic area, and a small number of individuals face an increased likelihood of stochastic extinction due to changes in demography, the environment, genetics, or other factors, in a process described as an extinction vortex (a mutual reinforcement that occurs among biotic and abiotic processes that drives population size downward to extinction) (Gilpin and Soule´ 1986, pp. 24–25). The negative impacts associated with small population size and vulnerability to random demographic fluctuations or natural catastrophes can be further magnified by synergistic interactions with other threats.

The Yangtze sturgeon is known from a single geographic population in the upper Yangtze River and its tributaries (Zhang *et al.* 2011, pp 181–182; Zhuang *et al.* 1997, p. 259). As a result, the species is highly vulnerable to stochastic processes and is highly likely negatively affected by these processes. In March 2000, for example, the Jinguang Chemical Plant, located on the Dadu River (a tributary of the Yangtze River), was found to be releasing yellow phosphorous into the Yangtze. This substance is highly toxic to aquatic organisms including the Yangtze sturgeon (Chen D. *et al.* 2009, p. 343). Another spill in 2006 on the Yuexi River, which also feeds into the Yangtze, saw mercury being released into the river (Worldwatch Insitute 2006, npn). These and other incidents combined with the fact that the Yangtze River system is home to a large number of chemical plants suggest that risk of industrial spills is quite high. Therefore, it is likely that stochastic processes have negative impacts on the species in combination with other factors such as habitat modification and loss and bycatch.

Determination

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination.

We have carefully assessed the best scientific and commercial information available on the Yangtze sturgeon. While we do not know the exact population size of the Yangtze sturgeon, the species was historically abundant enough to be commercially viable up to the 1970s, after which it experienced a significant decline (Kynard *et al.* 2003, p. 27). Loss of individuals due to overharvesting by fishermen on the Yangtze (Factor B) is the main factor that contributed to the historical decline of the species. Subsequent construction of dams on the Yangtze prevented the migration in the middle Yangtze and lower Jinsha, which prevented recovery of the species in these areas (Miao *et al.* 2015, p. 2351; Wu *et al.* 2014, p. 2; Dudgeon 2010, p. 128; Fang *et al.* 2006, p. 375; Zhuang *et al.* 1997, p. 261). Additionally, dams affect the quality of the species' habitat through changes in discharge, temperature, and sedimentation rate (Zhang G. *et al.* 2012, p. 445; Du *et al.* 2011, p. 262; Chen Z. *et al.* 2001, p. 90). In addition to dams, the species' habitat is also adversely affected by riverbed modification to accommodate increasing boat traffic. The combined effects of dams and riverbed modification on the Yangtze include the loss and reduction in quality of remaining habitat (Factor A).

Despite conservation efforts undertaken by local and national authorities such as fishing bans and restocking, current efforts do not appear to be successful in conserving the species. No natural reproduction has been documented in the wild since the 2000s (Wu *et al.* 2014, p. 1). Additionally, restocked juvenile sturgeon experience very high mortality rates due to a high bycatch rate and an inability to survive in wild conditions (Du *et al.* 2014, p. 1; Wu *et al.* 2014, p. 4).

Industrial pollution and hybridization with displaced native and nonnative sturgeon species are also acting on the species (Factor E). Although we do not have information on the impact of industrial pollution on the species in the wild, studies in a laboratory environment found that pollutants such as TPT and EDC can reduce the reproductive success rate of adult sturgeons (Hu *et al.* 2009, p. 9342; An and Hu 2006, pp. 379–380). Additionally, there are high concentrations of TPT and EDC in the Yangtze River. While we do not have data on the hybridization of Yangtze sturgeon with other species, surveys conducted in the lower Yangtze River found that 69.9 percent of sturgeon species caught were hybrids (Li R. *et al.* 2009, p. 636). These results suggest that industrial pollution and hybridization, in tandem with other factors, are affecting the species.

Therefore, for the following reasons we conclude that this species has been and continues to be significantly reduced to the extent that the viability of the Yangtze sturgeon is significantly compromised:

(1) The species is limited to a single geographic population in the upper Yangtze main stem and its tributaries. There is also some evidence of a small remnant population in the middle Yangtze.

(2) Loss of habitat and connectivity between the spawning and feeding reaches is having a significant adverse effect on the species, which appears to have low to no reproduction.

(3) The cumulative effects of habitat modification and loss due to dams and riverbed projects, bycatch, industrial pollution, and hybridization are adversely affecting the species.

(4) Current restocking and management efforts are inadequate to maintain the species' presence in the wild.

(5) Stochastic events, such as industrial spills or drought, can reduce the survival rate of the species

In section 3(6), the Act defines an ''endangered species'' as any species that is ''in danger of extinction throughout all or a significant portion of its range'' and in section 3(20), a ''threatened species'' as any species that is ''likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' We find that the Yangtze sturgeon is presently in danger of extinction throughout its range based on the severity and immediacy of threats currently adversely affecting the species. The populations and distributions of the species have been significantly reduced to the point where there is no current reproduction in the wild which is indicative of a very high risk of extinction, and the remaining habitat and populations are threatened by a variety of factors acting alone and in combination to reduce the overall viability of the species.

Based on the factors described above and their impacts on the Yangtze sturgeon, we find the following factors to be threats to this species (*i.e.,* factors contributing to the risk of extinction of this species): Loss and modification of habitat due to dams and riverbed expansion (Factor A), bycatch (Factor C), and cumulative effects (Factor E) of these and other threats including industrial pollution and hybridization. Furthermore, current legal and management efforts over these practices are inadequate to conserve the species (Factor D).

Therefore, on the basis of the best available scientific and commercial information, we propose listing Yangtze sturgeon as endangered in accordance with sections 3(6) and 4(a)(1) of the Act. We find that a threatened species status is not appropriate for this species because of its restricted range, limited distribution, and vulnerability to extinction; and because the threats are ongoing throughout its range at a level that places this species in danger of extinction now.

Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. Because we have determined that the Yangtze sturgeon is endangered throughout all of its range, we do not need to conduct an analysis of whether there is any significant portion of its range where the species is in danger of extinction or likely to become so in the foreseeable future. This is consistent with the Act because when we find that a species is currently in danger of extinction throughout all of its range (*i.e.,* meets the definition of an ''endangered species''), the species is experiencing high-magnitude threats across its range or threats are so high in particular areas that they severely affect the species across its range. Therefore, the species is in danger of extinction throughout every portion of its range and an analysis of whether there is any significant portion of the range that may be in danger of extinction or likely to become so would not result in a different outcome.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition of conservation status, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in public awareness and conservation actions by Federal and State governments in the United States, foreign governments, private agencies and groups, and individuals.

Our regulations at 50 CFR part 402 implement the interagency cooperation provisions found under ESA Section 7. Under section 7(a)(1) of the ESA, federal agencies are to utilize, in consultation with and with the assistance of the Service, their authorities in furtherance of the purposes of the Act. Section 7(a)(2) of the Act, as amended, requires Federal agencies to ensure, in consultation with the Service, that ''any action authorized, funded, or carried out'' by such agency is not likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of its critical habitat. An ''action'' that is subject to the consultation provisions of section 7(a)(2) has been defined in our implementing regulations as ''all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas.'' 50 CFR 402.02. With respect to this species, there are no ''actions'' known to require consultation under ESA Section 7(a)(2). Given the regulatory definition of ''action,'' which clarifies that it applies to ''activities or programs . . . in the United States or upon the high seas,'' the species is unlikely to be the subject of section 7 consultations, because the species conducts its entire life cycle in freshwater outside of the United States and is unlikely to be affected by U.S. Federal actions. Additionally, because the Yangtze sturgeon is not native to the United States, no critical habitat is being proposed for designation with this rule. 50 CFR 424.12(g).

Section 8(a) of the Act authorizes the provision of limited financial assistance for the development and management of programs that the Secretary of the Interior determines to be necessary or useful for the conservation of endangered or threatened species in foreign countries. Sections 8(b) and 8(c) of the Act authorize the Secretary to encourage conservation programs for foreign listed species, and to provide assistance for such programs, in the form of personnel and the training of personnel.

Section 9 of the Act and our implementing regulations at 50 CFR 17.21 set forth a series of general prohibitions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to ''take'' (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) endangered wildlife within the United States or upon the high seas. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. In addition, it is illegal for any person subject to the jurisdiction of the United States to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any listed species. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits under section 10 of the Act to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits for endangered species are codified at 50 CFR 17.22. With regard to endangered wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. There are also certain statutory exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

Required Determination

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with listing a species as an endangered or threatened species under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of references cited in this rulemaking is available on the internet at *http://www.regulations.gov* and upon request from the Branch of Foreign Species, Ecological Services (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Branch of Foreign Species, Ecological Services, Falls Church, VA.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

■ 2. In § 17.11(h), add an entry for ''Sturgeon, Yangtze'' to the List of Endangered and Threatened Wildlife in alphabetical order under FISHES to read as set forth below:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* *	*	* *		* *
FISHES				
* *	*	* *		* *
Sturgeon, Yangtze	*Acipenser dabryanus*	Wherever found	E	[*Insert **Federal Register** citation when published as a final rule*].
* *	*	* *		* *

* * * * *

Dated: November 15, 2017.

James W. Kurth,

Deputy Director, U.S. Fish and Wildlife Service, Exercising the Authority of the Director, U.S. Fish and Wildlife Service.

[FR Doc. 2017–27954 Filed 12–26–17; 8:45 am]

BILLING CODE 4333–15–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 170720688–7688–01]

RIN 0648–BH07

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Reef Fish Fishery of the Gulf of Mexico; Vermilion Snapper Management Measures; Amendment 47

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes to implement management measures described in Amendment 47 to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico (FMP), as prepared by the Gulf of Mexico Fishery Management Council (Council) (Amendment 47). For vermilion snapper, this proposed rule would revise the stock annual catch limit (ACL). Additionally, Amendment 47 would establish a proxy for the estimate of the stock maximum sustainable yield (MSY). The purpose of this proposed rule is to revise the stock ACL for vermilion snapper in the Gulf of Mexico (Gulf) consistent with the most recent stock assessment.

DATES: Written comments must be received on or before January 26, 2018.

ADDRESSES: You may submit comments on the amendment identified by ''NOAA–NMFS–2017–0106'' by either of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2017-0106,* click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit written comments to Lauren Waters, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous). Electronic copies of Amendment 47, which includes an environmental assessment,