by January 1, 2023. In the final analysis, EPA believes that approval of the amended dry cleaning ATCM will result in emission reductions from each affected sources that are no less stringent than would result from the dry cleaning NESHAP. Accordingly, EPA is proposing to grant California the authority to implement and enforce its amended dry cleaning ATCM in place of the dry cleaning NESHAP for area sources in the State of California, with the exception of the SCAQMD.

IV. Public Comment and Proposed Action

Because EPA believes California's request meets all the requirements necessary to qualify for approval under CAA section 112(l) and 40 CFR 63.91 and 63.93, we are proposing approval of the amended dry cleaning ATCM as a substitute for the dry cleaning NESHAP. We will accept comments on this proposal for the next 30 days. Unless we receive convincing new information during the comment period, we intend to publish a final approval action that will establish the amended dry cleaning ATCM as the federally-enforceable regulation in California, with the exception of the SCAQMD, for perc dry cleaning area sources. Although California would have primary implementation and enforcement responsibility, EPA would retain the right, pursuant to CAA section 112(l)(7), to enforce any applicable emission standard or requirement under CAA section 112. If this proposal is finalized, the amended dry cleaning ATCM would be the federally-enforceable standard in California and would be enforceable by the Administrator and citizens under the CAA. However, any provision of the amended dry cleaning ATCM that allows for the approval of alternative means of emission limitations must also receive approval from EPA before such alternatives can be used (*e.g.,* Section 93109(d)(27) and (38), and (i)(3)(A)(2)). Additionally, this delegation does not extend to the provisions regarding California's enforcement authorities or its collection of fees as described in Sections 93109.1(c) and 93109.2(c) and (d), Title 17 of the California Code of Regulations. Approval of the amended dry cleaning ATCM does not in any way limit the enforcement authorities, including the penalty authorities, of the Clean Air Act.

V. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a State delegation submission that complies with the provisions of the CAA and applicable Federal regulations. 42 U.S.C. 7412(l); 40 CFR 63.90. Thus, in reviewing delegation submissions, EPA's role is to approve State choices, provided that they meet the criteria of the Clean Air Act. Accordingly, this action merely approves State law as meeting Federal requirements and does not impose additional requirements beyond those imposed by State law. For that reason, this action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and
- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this rule does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the submitted rule is not approved to apply in Indian country located in the State, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous substances, Intergovernmental relations, Incorporation by reference, Reporting and recordkeeping requirements.

Authority: This action is issued under the authority of Title III of the Clean Air Act as amended, 42 U.S.C. 2399.

Dated: August 30, 2010.

Jared Blumenfeld,

Regional Administrator, Region IX.

[FR Doc. 2010–25127 Filed 10–5–10; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R4-ES-2008-0107]
[92210 1111 0000-B2]

RIN 1018-AV88

Endangered and Threatened Wildlife and Plants; Endangered Status for the Altamaha Spinymussel and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, propose to list the Altamaha spinymussel (*Elliptio spinosa*), a freshwater mussel endemic to the Altamaha River drainage of southeastern Georgia, as an endangered species under the Endangered Species Act of 1973, as amended (Act), and to designate approximately 240 kilometers (149 miles) of mainstem river channel as critical habitat in Appling, Ben Hill, Coffee, Jeff Davis, Long, Montgomery, Tattnall, Telfair, Toombs, Wayne, and Wheeler Counties, Georgia. This proposed rule, if made final, would implement the Federal protections provided by the Act.

DATES: We will consider comments received or postmarked on or before December 6, 2010. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** section by November 22, 2010.

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

- Federal eRulemaking Portal: *http://www.regulations.gov. Follow the instructions* for submitting comments on Docket no. **FWS-R4-ES-2008-0107**.
- U.S. mail or hand-delivery: Public Comments Processing, Attn: **FWS-R4-ES-2008-0107**; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will post all comments on *http://www.regulations.gov. This generally means* that we will post any personal information you provide us (see the **Public Comments** section below for more information).

FOR FURTHER INFORMATION CONTACT: Sandra Tucker, Field Supervisor, U.S. Fish and Wildlife Service, Georgia Ecological Services Office, 105 Westpark Dr., Suite D, Athens, GA 30606; telephone 706-613-9493; facsimile 706-613-6059. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION: This document consists of: (1) A proposed rule to list the Altamaha spinymussel (*Elliptio spinosa*) as endangered; and (2) a proposed critical habitat designation for this species.

Previous Federal Action

The Altamaha spinymussel was first identified as a candidate for protection under the Act in the May 22, 1984, **Federal Register** (49 FR 21664). As a candidate, it was assigned a status category 2 designation, which was given to those species with some evidence of vulnerability, but for which additional biological information was needed to support a proposed rule to list as endangered or threatened. In our Notices of Review dated January 6, 1989 (54 FR 554), November 21, 1991 (56 FR 58804), and November 15, 1994 (59 FR 58982), we retained a status category 2 designation for this species. We discontinued assigning categories to candidate species in our Notice of Review dated February 28, 1996 (61 FR 7596), and only species for which the U.S. Fish and Wildlife Service (Service) had sufficient information on biological vulnerability and threats to support issuance of a proposed rule were regarded as candidate species.

On June 13, 2002, we listed the Altamaha spinymussel in the **Federal Register** (67 FR 40657) as a candidate species with a listing priority number (LPN) of 5. Candidate species are assigned LPNs based on immediacy and the magnitude of threat, as well as their taxonomic status. The lower the LPN, the higher priority that species is for us to determine appropriate action using our available resources. In our Notices of Review dated May 4, 2004 (69 FR 24876), and May 11, 2005 (70 FR 24870), we determined that publication of a proposed rule to list the species was precluded by our work on higher priority listing actions and retained a LPN of 5 for this species, in accordance with our priority guidance published on September 21, 1983 (48 FR 43098).

On September 12, 2006 (71 FR 53755), we changed the species' LPN from 5 to 2. Recent data suggesting declines from surveys conducted in the early 1990s and information on a new threat from deadhead logging justified the change in LPN. An LPN of 2 reflects threats that are both imminent and high in magnitude, as well as the taxonomic classification of the Altamaha spinymussel as a full species. We have retained an LPN of 2 in subsequent Notices of Review (72 FR 69033, December 6, 2007; 73 FR 75175, December 10, 2008; 74 FR 57803, November 9, 2009).

Public Comments

We intend that any final action resulting from this proposal will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule. We particularly seek comments concerning:

(1) The factors that are the basis for making a listing determination for a species under section 4(a) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), which are:

(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.

(2) Additional information concerning the range, distribution, and population size of this species, including the locations of any additional populations of this species.

(3) Any information on the biological or ecological requirements of the species.

(4) Land use designations and current or planned activities, including deadhead logging, in the areas occupied by the species and possible impacts of these activities on this species.

(5) Which areas would be appropriate as critical habitat for the species.

(6) The reasons why areas should or should not be designated as critical habitat as provided by section 4 of the Act (16 U.S.C. 1531 *et seq.*).

(7) Comments or information that may assist us in identifying or clarifying the primary constituent elements.

(8) Specific information on

(a) The amount and distribution of Altamaha spinymussel habitat,

(b) What areas occupied at the time of listing (i.e., currently occupied) and that contain features essential to the conservation of the species which may require special management considerations or protection we should include in the designation and why, and

(c) What areas not occupied at the time of listing are essential for the conservation of the species and why.

(9) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation, in particular, any impacts to small entities, and the benefits of including or excluding areas that exhibit these impacts.

(10) Whether any specific areas we are proposing as critical habitat should be considered for exclusion under section 4(b)(2) of the Act, and whether benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act.

(11) Information on any quantifiable economic costs of the proposed designation.

(12) Information on the projected and reasonably likely impacts of climate change on the Altamaha spinymussel, and any special management needs or protections that may be needed in critical habitat areas we are proposing.

(13) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not accept comments sent by e-mail or fax or to an address not listed in the **ADDRESSES** section.

We will post your entire comment—including your personal identifying information—on *http://www.regulations.gov. If your written comments provide 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.

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, Georgia Ecological Services Office, Athens, Georgia (see **FOR FURTHER INFORMATION CONTACT**).

Background

Species Description

The Altamaha spinymussel (*Elliptio spinosa*) is a freshwater mussel, in the family Unionidae, endemic to the Altamaha River drainage of southeastern Georgia. The Altamaha River is formed by the confluence of the Ocmulgee and Oconee rivers and lies entirely within the State of Georgia. The species was described by I. Lea in 1836 from a site near the mouth of the Altamaha River in Darien, Georgia (Johnson 1970, p. 303).

This species reaches a shell length of approximately 11.0 centimeters (cm) (4.3 inches (in)). The shell is subrhomboidal or subtriangular in outline and moderately inflated. As the name implies, the shells of these animals are adorned with one to five prominent spines. These spines may by straight or crooked, reach lengths from 1.0 to 2.5 cm (0.39 to 0.98 in), and are arranged in a single row that is somewhat parallel to the posterior ridge. In young specimens, the outside layer or covering of the shell (periostracum) is greenish-yellow with faint greenish rays, but as the animals get older, they typically become a deep brown, although some raying may still be evident in older individuals. The interior layer of the shell (nacre) is pink or purplish (Johnson 1970, p. 303).

Life History and Habitat

Adult freshwater mussels are filter-feeders, siphoning phytoplankton, diatoms, and other microorganisms from the water column. For the first several months, juvenile mussels employ pedal (foot) feeding, extracting bacteria, algae, and detritus from the sediment (Yeager *et al.* 1994, pp. 217–221; Wisniewski 2008, pers. comm.).

Although the life history of the Altamaha spinymussel has not been studied, the life histories of other mussels in the *Elliptio* genus have been. Fertilization takes place internally, resulting in the release of parasitic larvae, termed glochidia. To ensure survival, glochidia must come into contact with a specific host fish(es) to develop into juvenile mussels. Other mussels in the genus *Elliptio* attract host fishes with visual cues, luring fish into perceiving that their glochidia are prey items (The Nature Conservancy (TNC) 2004, p. 4). This reproductive strategy depends on clear water during the time of the year when mussels release their glochidia (Hartfield and Hartfield 1996, p. 375). The Altamaha spinymussel is thought to reproduce in late spring and ready to release glochidia by May or June (Johnson 2009, p. 2). The host fish of the Altamaha spinymussel is currently unknown. Furthermore, juvenile age classes of other mussels are commonly found during surveys; however, no spinymussel recruitment has been evident in surveys conducted since 1990 (Keferl 2008, pers. comm.; Wisniewski 2008, pers. comm.). Research to develop a better understanding of the natural history and the reasons for a lack of recruitment in the species is continuing.

This spinymussel is known only from Georgia in Glynn, Ben Hill, McIntosh, Telfair, Tattnall, Long, Montgomery, Toombs, Wheeler, Appling, Jeff Davis, Coffee, and Wayne Counties. This spinymussel is considered a "big river" species; is associated with stable, coarse to fine sandy sediments of sandbars, sloughs, and mid-channel islands; and appears to be restricted to swiftly flowing water (Sickel 1980, p. 12). Johnson (1970, p. 303) reported Altamaha spinymussels buried approximately 5.1 to 10.2 cm (2.0 to 4.0 in) below the substrate surface.

Species Distribution and Status

The historical range of the Altamaha spinymussel was restricted to the Coastal Plain portion of the Altamaha River and the lower portions of its three major tributaries, the Ohoopee, Ocmulgee, and Oconee Rivers (Johnson 1970, p. 303; Keferl 2001, pers. comm.). Large-scale, targeted surveys for the mussel have been conducted since the 1960s (Keferl 1993, p. 299). Recent surveys have revealed a dramatic decline in recruitment, the number of populations, and number of individuals within populations throughout the species' historic range.

Ohoopee River

In a survey of the Ohoopee River, Keferl (1981, pp. 12–14) found at least 30 live specimens of the Altamaha spinymussel at seven of eight collection sites, in thinly scattered beds, in the lower 8 kilometers (km) (5 miles(mi)) of the river. By the early 1990s, however, only two live specimens were found at the same sites (Keferl 1995, pp. 3–6; Keferl 2008 pers. comm.; Wisniewski 2006, pers. comm.). Stringfellow and Gagnon (2001, pp. 1–2) resurveyed these sites using techniques similar to those used by Keferl (1981, p. 12), but they did not find any live Altamaha spinymussels in the Ohoopee River. Therefore, it is currently either extirpated from the system or present in such low numbers that it is undetectable.

Ocmulgee River

The Altamaha spinymussel is known from the Ocmulgee River from its confluence with the Oconee River upstream to Red Bluff in Ben Hill County. Early collecting efforts in the Ocmulgee River near Lumber City yielded many live Altamaha spinymussels. In 1962, Athearn made a single collection of 40 live spinymussels downstream of U.S. Highway 341 near Lumber City (Johnson *et al.* 2008, Athearn database). Researchers collected 19 and 21 live individuals, respectively, during two surveys at Red Bluff (Thomas and Scott 1965, p. 67). In 1986, Stansbery collected 11 live individuals at the U.S. Highway 441 Bridge near Jacksonville, Georgia (Wisniewski 2006, pers. comm.).

The lower Ocmulgee River was surveyed by Keferl in the mid 1990s, during 2000–2001 (Cammack *et al.* 2001, p. 11; O'Brien 2002, p. 2), and in 2004 (Dinkins 2004, pp. 1-1 and 2-1). Over 90 sites have been surveyed since 1993, many of which were repeatedly surveyed, resulting in a total of 19 live Altamaha spinymussels detected at 10 sites, distributed from Jacksonville downstream to the Oconee River confluence.

Oconee River

There are few historical records of Altamaha spinymussels from the Oconee River. Athearn collected 18 spinymussels, including 5 juveniles, at a site in Montgomery County near Glenwood in the late 1960s (Johnson 2008, Athearn database). The species has not been collected there since and is probably extirpated from the Oconee River system (Keferl 2008, pers. comm.). In 1995, as part of a dam relicensing study, 41 sites between Lake Sinclair and Dublin were surveyed (EA Engineering 1995, pp. 1-1, 3-1, 3-2, 4-2, and 4-3). One hundred forty-four hours of search time yielded 118 live mussels, but no Altamaha spinymussels. Compared to the other portions of its range, the Oconee River has not been extensively surveyed, in part because the entire mussel fauna of this river appears to be sparse.

Altamaha River

Most surveys for Altamaha spinymussels have been conducted in the Altamaha River. Although methodological differences preclude accurate comparison of mussel abundances over time, there is evidence that historically higher abundances of

Altamaha spinymussels occurred in the Altamaha River. Early surveys at the U.S. Route 301 crossing documented 20 individuals in 1963, 7 in 1965, and 43 in 1970. Sickel sampled seven sites downstream of the U.S. 1 bridge in 1967. Sixty spinymussels were collected in one 500-square meters (m^2) (5382-square feet (ft^2)) site and an additional 21 spinymussels were collected in a 400-m^2 (4306-ft^2) (Sickel 1967, p. 11; Wisniewski 2006, pers. comm.) site. One site had five live spinymussels, two sites had one each, and two sites had no Altamaha spinymussels.

From 1993 to 1996, Keferl surveyed 164 sites on the mainstem of the Altamaha River between the Ocmulgee–Oconee River confluence and the Interstate 95 crossing near the river's mouth. A total of 63 live Altamaha spinymussels were collected from 18 of these sites, located between the Oconee River and U.S. Route 301; however, no Altamaha spinymussels were collected below U.S. Route 301, suggesting absence or extreme rarity in the reach between U.S. Route 301 and the river's mouth (approximately 73 km (45 mi)). In addition, 10 of these sites were clustered within a 4-km (2-mi) reach upstream of the U.S. Route 301 crossing near Jesup; the remaining eight sites were isolated by long distances of habitat with no or sub-detectable numbers of live spinymussels.

O'Brien (2002, pp. 3–4) surveyed 30 sites on the Altamaha River from the confluence of the Ocmulgee and Oconee Rivers downstream to U.S. Route 301 during 2001, including the 18 known Altamaha spinymussel sites, reported by Keferl, within the reach. She collected a total of six live individuals from five different sites and freshly dead shells from two additional sites.

In 2003 and 2004, 25 sites were surveyed to collect specimens for host-fish trials (Albanese 2005, pers. comm.). Live Altamaha spinymussels were detected at only four sites. Five of the seven sites documented by O'Brien and all four sites documented during the host-fish surveys were clustered within a short reach of the Altamaha River just upstream of the U.S. Route 301 crossing near Jesup, Georgia.

To summarize, researchers were able to find 60 Altamaha spinymussels at a single site on the Altamaha River in 1967; in contrast, the largest number of Altamaha spinymussels observed from a single site on the Altamaha River during the 1990s or 2000s was nine (Albanese 2005, pers. comm.).

Summary of Basin-wide Population Estimates

In 1994, researchers spent 128 search-hours throughout the Altamaha Basin to find 41 spinymussels (Keferl 1995, p. 3). From 1997 through 2006, researchers searched 233 sites throughout the basin to document 34 spinymussels in more than 550 hours of searching (Wisniewski 2006, pers. comm.); from 2007 to 2009, only 23 spinymussels were found from more than 110 sites (Wisniewski 2009, pers. comm.). In summary, the Altamaha spinymussel is considered extirpated from two rivers in its historical range, the Ohoopee (15 km (9 mi)) and Oconee Rivers (45 km (28 mi)), as well as the lower 73 km (45 mi) of the Altamaha River (Table 1). Since 1997, despite extensive survey efforts made by several different researchers, only 57 spinymussels have been observed from 7 sites in the Ocmulgee (110 km (68 mi)) and 15 sites in the upper Altamaha (116 km (72 mi)) combined, and while individual spinymussels have been found scattered throughout this stretch of river, most of these sites have been clustered in the 10 km (6 mi) immediately north of the U.S. Route 301 crossing.

TABLE 1. *Decline in range of the Altamaha spinymussel.*

River Reach	Historically Occupied (linear km/mi)	Current habitat	Percent of range decline
Ohoopee	15km/9mi	Not seen since 1997	4%
Oconee	45km/28mi	Not seen since 1968	12.5%
Ocmulgee	110km/68.3mi	Widely scattered	0
Upper Altamaha	116km/72mi	Widely scattered individuals	0
Lower Altamaha	73km/45mi	Not seen since 1970	20%
Total	**359km/222 mi**	**226km/140 mi**	**36.5%**

Using GDNR's database, which included many of the surveys mentioned above, Wisniewski *et al.* (2005, p. 2) conducted a test for a temporal change in sites occupied in the Ocmulgee and Altamaha Rivers between the early 1990s and the early 2000s. Live Altamaha spinymussels were detected at 24 of 241 sites (10 percent) sampled before 2000 and at 14 of 120 sites (12 percent) sampled after 2000. Although the percentage of sites occupied is not indicative of a decline, an analysis of 39 sites sampled during both time periods, of which the spinymussel was initially present in 13 of the 39 sites, indicated that the spinymussel was lost from significantly more sites (11 sites) than it colonized (3 sites) between the early 1990s and early 2000s (Wisniewski *et al.* 2005, p. 2). This test is imprecise because the failure to detect Altamaha spinymussels when present could result in both false colonizations (species missed during early surveys but detected in recent survey) and false extirpations (species detected during early survey but missed during recent survey). Thus, although the exact number of extirpations and colonizations between the two time periods may not be accurate, the much higher number of extirpations is suggestive of a decline over this time period.

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. The five listing factors are: (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; and (E) other natural or manmade factors affecting its continued existence.

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Bogan (1993, pp. 599–600 and 603–605) linked the decline and extinction of bivalves to a wide variety of threats including siltation, industrial pollution, municipal effluents, modification of stream channels, impoundments, pesticides, heavy metals, invasive species, and the loss of host fish. The Altamaha spinymussel lives within a large river drainage exposed to a variety of landscape uses. Habitat and water quality for the Altamaha spinymussel face degradation from a number of sources. Primary among these are threats from sedimentation and contaminants within the streams that the spinymussel inhabits.

Sickel (1980, p. 12) characterized the habitat of the Altamaha spinymussel as course to fine grain sandbars and suggested that this may make the Altamaha spinymussel susceptible to adverse effects from sediment (siltation). Sediments deposited on the stable sandbars required by the Altamaha spinymussel could make sandbars unstable, suffocate Altamaha spinymussels, or simply change the texture of the substrate, making them unsuitable for the species. Sedimentation, including siltation from surface runoff, has been implicated as a factor in water quality impairment in the United States and has contributed to the decline of mussel populations in streams throughout the country (Ellis 1936, pp. 39–41; Coon *et al.* 1977, p. 284; Marking and Bills 1979, pp. 209–210; Wilber 1983, pp. 25–57; Dennis 1984, pp. 207–212; Aldridge *et al.* 1987, pp. 25–26; Schuster *et al.* 1989, p. 84; Wolcott and Neves 1991, pp. 1–6; Houp 1993, p. 96; Bogan 1993, pp. 603–605; Waters 1995, pp. 53–77; Richter *et al.* 1997, p. 1084).

Specific impacts on mussels from sediments include reduced feeding and respiratory efficiency, disrupted metabolic processes, reduced growth rates, increased substrata instability, and the physical smothering of mussels (Ellis 1936, pp. 39–41; Stansbery 1970, p. 10; Markings and Bills 1979, pp. 209–210; Kat 1982, p. 124; Aldridge *et al.* 1987, pp. 25–26; Hartfield and Hartfield 1996, p. 375; Brim Box and Mossa 1999, pp. 99–102; TNC 2004, p. 4). Many southeastern streams have increased turbidity levels due to siltation (van der Schalie 1938, p. 56). Since turbidity is a limiting factor that impedes the ability of sight-feeding fishes to forage (Burkhead and Jenkins 1991, pp. 324–325), turbidity within the Altamaha River basin during the times that Altamaha spinymussels attempt to attract host fishes may have contributed and may continue to contribute to the decline of the spinymussel by reducing its efficiency at attracting the fish hosts necessary for reproduction. In addition, sediment can eliminate or reduce the recruitment of juvenile mussels (Brim Box and Mossa 1999, pp. 101–102), interfere with feeding activity (Dennis 1984, pp. 207–212), and act as a vector in delivering contaminants to streams (Salomons *et al.* 1987, p. 28).

From 1700 to 1970, agriculture practices in the Southern Piedmont physiographic province resulted in extreme soil erosion, removing more than 17.8 cm (7 in.) of soil across the landscape (Trimble 1974, p. 1). The Ocmulgee, Oconee, and Ohoopee rivers all drain through the Piedmont and were directly affected by the sediment. In 1938, van der Schalie (p. 56) reported the Altamaha River to be a yellow color due to the large amount of suspended silt originating from intensive farming and road construction occurring in the headwaters. The sediment from this practice has moved into stream channels and valleys and has covered most of the original bottomlands (Trimble 1974, p. 26). As a result, stream profiles have been dramatically altered with unstable sediment deposits being dissected and streams being incised with entrained sediment migrating downstream to be deposited in stream channels and floodplains (Trimble 1974, pp. 116–121). GDNR, Environmental Protection Division (EPD 2007, p. iii) reported to the U.S. Environmental Protection Agency (EPA) that approximately 74.9 percent of the average sediment load in the Altamaha River Basin resulted from row crops and that it contributed an average sediment load of 1.07 tons per acre per year. EPD concluded that this sediment is probably a legacy of past land use. Although it is the historical, anthropogenic land use that created the sediment, the volume of sediment still migrating through the Altamaha River Basin is a significant threat to the spinymussel.

Studies of fish population were conducted in 2000 by the GDNR Wildlife Resources Division (WRD) in the Altamaha River Basin. The Index of Biotic Integrity (IBI) and modified Index of Well-Being (IWB) were used by WRD to identify impaired fish populations. Using the IBI and IWB values to classify the populations as Excellent, Good, Fair, Poor, or Very Poor, stream segments with fish populations rated as Poor or Very Poor were listed as Biota Impacted. A lack of fish habitat due to stream sedimentation was generally the cause of a low IBI score.

Five Mile Creek (14.5 km/9 mi), Bullard Creek (12.8 km/8 mi), and Jacks Creek (14.5 km/9 mi) were rated as Very Poor and placed on the State of Georgia's 303(d) list of impaired waters due to a significant impact on fish (EPD 2007a, pp. 1-2). These three streams eventually feed into the mainstem of the Altamaha River via larger channels. As this sediment moves through the basin, habitat is periodically buried. WRD recommends that there be no net increase in sediment delivered to the impaired stream segments so that these streams will recover over time (EPD 2007a, p. 26). Agriculture and roads were the major sources of sediment with silviculture, mining sites, grazing, and urban development also contributing nonpoint sources of sediment (EPD 2007a, p. 9). Agriculture, including row crops, poultry farms, and pastures, constitute 15.5 percent of the land cover in the Piedmont and 32.7 percent of the land cover in the Coastal Plain (GDNR 2005, pp. 97 and 132).

In addition to agriculture, there are numerous sources of sediment within the Altamaha River Basin, including silviculture, unpaved roads, kaolin mines, and construction sites. A threat assessment conducted by TNC (2004, p. 9) listed sediment from urban, industrial, and nonpoint sources (NPSs) as a threat to the spinymussel. EPD (2007, p. v) reported that while historical row crop-based land use contributes the majority of sediment in the Altamaha River (75 percent) that among other sources, approximately 17.3 percent of the total sediment load is from roads; 4.3 percent from grasses and wetlands; 1.5 percent from urban lands; and 1.0 percent from quarries, strip mines, and gravel pits. In addition, estimates of the contribution from construction could not be obtained, but could represent a comparatively high sediment load on a per acre basis (EPD 2007, p. v).

Industrial forest management is practiced on approximately 8,000 hectares (40,000 acres) or 33 percent of the floodplain of the Altamaha River (TNC 1997, p. 19). Typical forest management regimes in the Altamaha River Basin use timber harvest methods and conduct other activities that result in ground disturbances. These ground disturbances can result in transport of

sediment to streams during and after precipitation events. In addition, forest management operations often require miles of unpaved roads to extract timber and to provide access for management activities. The majority of sediment from forestry occurs from roads and site preparation activities (EPD 2007a, p. 11). These roads, in conjunction with existing unpaved county roads that are prevalent throughout the Altamaha River Basin, contribute to sediment loading in streams after precipitation events. Through an agreement with EPD, the Georgia Forestry Commission (GFC) is responsible for implementing the use of Best Management Practices (BMPs) to reduce erosion and sediment from activities related to forestry such as timber harvest, haul road construction, stream crossings, stream side management zones, site preparation and reforestation. However, the Erosion and Sediment Control Act (O.C.G.A. 12-7-1) exempts commercial forestry activities from the need to acquire permits and meet the minimum requirements of that act (Georgia's BMPs for Forestry 2009, p. 64). Therefore, compliance with BMPs is voluntary and is dependent on education about BMPs to reduce sediment from reaching the Altamaha River (EPD 2007a, p. 28).

Furthermore, a number of kaolin mines are located along the Fall Line, a geologic land form that separates the Piedmont and Coastal Plain physiographic provinces, within the Oconee and Ocmulgee river basins. The operation of these mines and their supporting infrastructure, including haul roads and settling ponds, have the potential to increase downstream sediment loads if adequate erosion control measures are not maintained to stabilize areas subjected to mining-associated ground disturbances (Lasier 2004, p. 139).

In addition, sediment can act as a vector in delivering contaminants (such as heavy metals, ammonia, chlorine, numerous organic compounds) to streams (Salomons *et al.* 1987, p. 28; TNC 2004, pp. 9). Because spinymussels are filter-feeders and bury themselves in the substrate, they are exposed to metals dissolved in water, contained within suspended particles, and deposited in bottom substrates (Naimo 1995, p. 341). Contaminants contained in point and nonpoint discharges can degrade water and substrate quality and adversely impact, if not destroy, mussel populations (Horne and McIntosh 1979, pp. 127–132; McCann and Neves 1992, pp. 80–87; Havlik and Marking 1987, p. 14).

Contaminants associated with industrial and municipal effluents may cause decreased oxygen, increased acidity, and other water chemistry changes that may be lethal to mussels, particularly during the highly sensitive early life stages (Sheehan *et al.* 1989, pp. 139–140; Keller and Zam 1991, pp. 541–543; Bogan 1993, pp. 603–604; Goudreau *et al.* 1993, pp. 216–227; TNC 2004, pp. 8–9). Exposure to sublethal levels of toxic metals can alter growth, filtration efficiency, enzyme activity, and behavior (Naimo 1995, pp. 341, 354). In laboratory experiments, mussels suffered mortality when exposed to 2.0 parts per million (ppm) cadmium, 5.0 ppm ammonia, 12.4 ppm chromium, 16 ppm arsenic trioxide, 19 ppm copper, and 66 ppm zinc; however, effects depend upon the length of exposure and mussel life stage (Havlik and Marking 1987, p. 1). The adults of certain species may tolerate short-term exposure (Keller 1993, p. 701), but low levels of some metals may inhibit glochidial attachment in others (Huebner and Pynnönen 1992, p. 2353; Jacobson *et al.* 1993, pp. 881–882). Mussel recruitment may be reduced in habitats with low but chronic heavy metal and other toxicant inputs (Yeager *et al.* 1994, p. 217; Naimo 1995, pp. 347 and 351–352; Ahlstedt and Tuberville 1997, p. 75). Researchers found that several heavy metals were found to have toxic effects at different levels and duration of exposure; however, no toxicity studies have been conducted specifically on the Altamaha spinymussel (Havlik and Marking 1987, p. 3; Naimo 1995, p. 341; Keller and Lydy 1997, p. 4). Furthermore, differences between laboratory and field conditions make it difficult to predict how contaminants affect wild populations (Wisniewski 2008, pers. comm.).

From 2000 to 2008, many stream segments in the Altamaha Basin have been listed on the State's 303(d) list of impaired waters for a variety of reasons. Once a stream segment is listed as impaired, the State must complete a plan to address the issue causing the impairment; this plan is call a Total Maximum Daily Load (TMDL). Completion of the plan is generally all that is required to remove the stream segment from the 303(d) list and does not mean that water quality has changed. Once the TMDL is completed, the stream segment may be placed on the 305(b) list of impaired streams with a completed TMDL. Many of these stream segments have appeared repeatedly on the 303(d) list. The Ohoopee River and Little Ohoopee River have been listed on nearly every report for almost every violation. Other stream segments that have repeatedly showed up on the 303(d) list from 2000 until 2008 include Big Cedar Creek, Doctors Creek, Jacks Creek, Milligan Creek, Oconee Creek, Pendleton Creek, Rocky Creek, Sardis Creek, Swift Creek, Tiger Creek, and Yam Gandy Creek. This demonstrates a chronic threat, from multiple sources of pollution, scattered across the basin.

In 2000, the Altamaha River was listed on the 303(d) list of impaired waters due to excessive mercury levels in fish tissue. In 2002, the EPA Region 4 established a TMDL for mercury levels for the Altamaha River from its confluence of the Oconee and Ocmulgee Rivers to Penholoway Creek (149.5 km/92.9 mi) including Appling, Jeff Davis, Long, Tattnall, Tombs, and Wayne Counties. This river segment is entirely within the current or historic range of the spinymussel with four National Pollutant Discharge Elimination System (NPDES) permitted facilities, including:

- Rayonier Inc.-Jesup (67 million gallons per day (MGD));
- Plant Hatch (43.4 MGD);
- Jesup Water Pollution Control Plant (WPCP) (2.5 MGD); and
- Glennville WPCP (0.88 MGD) (EPA 2002a, pp. 1-5).

This 149.5 km (92.9 mi) segment of the Altamaha River, from the confluence of the Oconee and Ocmulgee Rivers to Penholloway Creek, was removed from the 303(d) list in 2002; it is currently listed as a stream supporting its designated use (fishing).

In 2000, EPD added 23 stream segments, totaling 411.9 km (256 mi), to the 303(d) list for not meeting dissolved oxygen standards (EPD 2002, p. 1). All of these segments are within tributaries to the Altamaha River within the range of the spinymussel. Between 2000–2001, there were nine NPDES permitted discharges with effluent limits for oxygen consuming substances identified in the Altamaha River Basin watershed above the 23 stream segments listed (EPD 2002, p. 11). Nonpoint source run-off from natural sources contributed oxygen-demanding pollutants (EPD 2002, p. 12). Upon completion of a TMDL in 2002, these river segments were removed from the 303(d) list.

In 2006, EPD listed 18 stream segments totaling 280 km (174 mi) as impaired due to fecal coliform bacteria in excess of water quality standards (EPD 2007c, pp. 1-2). All of these stream segments are tributaries to the Altamaha River within the current or historic range of the species. Between 2005–2006, there were 10 municipal wastewater treatment plants that discharged more than 0.1 MGD, along with four confined animal feed operations that were considered sources

of fecal coliform. Nonpoint sources include wildlife, livestock grazing, livestock access to streams, application of manure to pastureland and cropland, leaking sanitary sewer lines, leaking septic systems, land application systems (6 in the basin), and landfills (43 in the basin) (EPD 2007c, pp. 10-16). Even after the completion of the TMDL, six of these stream segments remain on the 303(d) list.

In 2008, EPD listed 362 stream miles of tributaries to the Altamaha River to the 305(b)/303(d) list of impaired waters, and all of these stream segments have completed TMDLs (EPD 2008 pp A-130 - A134). The draft 2010 305(b)/303(d) list of impaired waters for the Altamaha River included all of the stream segments from the 2008 list and added an additional 48 km (30 mi). These are all tributaries to the Altamaha or Ohoopee Rivers within the current or historic range of the Altamaha spinymussel. These stream segments are listed as impaired for a variety of reasons (e.g., dissolved oxygen, fecal coliform, and mercury levels within fish tissue). All of these river segments, such as the Ohoopee River (including the historic range of the spinymussel), have TMDLs but are still considered impaired.

More than 161 km (100 mi) of the Ohoopee River and its tributaries were added to the 303(d) list in 2000 due to excessive mercury levels in fish tissue. The primary source of mercury is believed to be deposition of atmospheric mercury. During 1998–1999, there were seven municipal wastewater treatment facilities (EPA 2002b, pp. 1–3) and as many as 170 sources of air emissions in the watershed (EPA 2002b, p. 18). These sources of mercury impacted all of the extirpated range of the spinymussel on the Ohoopee River, which is a major tributary to the Altamaha River. A TMDL was established in 2002; however, based on additional information gathered since 2002, EPA will begin revising needed load reductions in 2011 (EPA 2002b, p. 2). These segments of the Ohoopee remain on the 303(d) list.

In 2006, EPD added five stream segments, totaling 64.3 km (40 mi), within the Ohoopee drainage to the 303(d) list for not meeting dissolved oxygen standards (EPD 2007b, p. 1). All of these segments are within the range of the spinymussel. During 2004–2005, there were eight NPDES permitted discharges with effluent limits for oxygen-consuming substances identified in the Altamaha River Basin watershed (EPD 2007b, p. 10). There were four animal feeding lots and six wastewater land application operations that were identified as sources of oxygen-demanding nutrients. Nonpoint source run-off from forestry, row crop agriculture, pastureland, urban development, and natural sources also contribute oxygen-demanding pollutants (EPD 2007b, pp. 13–15). Upon completion of a TMDL in 2007, these five river segments were removed from the 303(d) list.

In addition, there have been a number of recent illegal effluent discharges into the Ohoopee that could have impacted the Altamaha spinymussel. For instance, the wastewater treatment discharge from Rogers State Prison enters the Ohoopee River approximately 10 km (6 mi) upstream of the largest historical population of Altamaha spinymussels known in the Ohoopee River. The Altamaha Riverkeeper reported fecal coliform discharges from the prison that exceeded the prison's NPDES permit (Holland 2002, pers. comm.).

There have also been a number of recent illegal effluent discharges into the Ocmulgee River that could have impacted the Altamaha spinymussel. In 2001, a court found that Amercord Inc. had violated its NPDES permit multiple times at its Lumber City tire plant by discharging quantities of cyanide, copper, zinc, and lead into the Ocmulgee River in excess of permit limitations (*Altamaha Riverkeeper* v. *Amercord, Inc.*, No. CV 300-042 (S.D. Ga) (Order on Motion for Partial Summary Judgment, Mar. 15, 2001)). In a second case, following allegations of discharges into the Ocmulgee River from Lumber City's waste treatment pond in excess of its NPDES permit, Lumber City agreed to implement several short- and long-term wastewater treatment improvements, which are expected to protect a population of Altamaha spinymussels *(Altamaha Riverkeeper* v. *City of Lumber City*, CV-300-043 (S.D. Ga)). The Altamaha Riverkeeper, a watchdog group that works to maintain the quality of the Altamaha River system, also discovered that from July 1995 to April 2001, the City of Cochran's waste treatment pond had discharged in violation of its NPDES permit (*Altamaha Riverkeepers v. City of Cochran*, No. CV-447-2) (M.D. Ga.). The City had been releasing ferric sulfate (used to treat fecal coliform) into Jordan Creek, a tributary of the Ocmulgee River approximately 80 km (50 mi) upstream of known populations of Altamaha spinymussels.

Sediment loads in the Oconee River carry toxic loads of heavy metals presumably discharged from municipal wastewater treatment plants and kaolin-mining settling ponds (Lasier 2004, pp. 139–140,144–151). Wastewater treatment plants and kaolin mines often employ settling ponds to allow pollutants to settle and turbidity to decrease. Copper sulfate and aluminum sulfate are often used as algaecides, to reduce algae blooms, and as flocculants to force precipitation of turbid waters and, in water treatment processes, to improve the sedimentation or filterability of small particles.

Lasier (2004, pp. 150-151) reported "abnormally" high levels of chromium, copper, mercury, and zinc in the lower Oconee river that would indicate a "significant" impact to the quality of sediment and pore water (the water in contact with the river bottom, and the water in which mussels reside). TNC (2004, p. 9) found water quality and sediment quality reflected "significant" inputs of pollution with concentrations of heavy metals (including cadmium, copper, chromium, lead, and zinc) at levels above regional and national concentrations. Shoults-Wilson (2008, pp. 86-92) sampled sites throughout the Altamaha River Basin to evaluate the presence of heavy metals in the water column and in the sediment and compared the bioaccumulation of heavy metals by Asian clams to *E. hopetonensis* (an Altamaha River endemic). Sampling of sites upstream and downstream of potential point sources of heavy metals demonstrated "significantly" elevated bioaccumulation of cadmium, copper, and mercury below inputs from kaolin processing, as well as elevated zinc and chromium below Plant Hatch, the Rayonier pulp mill in Jesup, Georgia, and the Amercord tire facility. Mussels in the Altamaha River basin may accumulate trace elements from the fine fraction of sediment as well as the water column.

The cumulative effects of effluent from wastewater treatment plants and kaolin mines on Altamaha spinymussel habitat have not been quantified; however, mussels appear to be among the most intolerant organisms to heavy metals (Keller and Zam 1991, p. 545), and several heavy metals are lethal, even at relatively low levels (Havlik and Marking 1987, p. 3). Most metals are persistent in the environment, remaining available for uptake, transportation, and transformation by organisms until they are removed from the river (Hoover 1978, pp. 28–38; Lasier 2004, p. 140) through processes such as washing out to sea, leaching through the soil, or being taken up by an organism that is then removed from the river.

In areas of heavy agricultural use in the Southeast, surface run-off can move pesticides, including malathion and

other insecticides, into surface water (McPherson *et al.* 2003, pp. 1–2). Stream ecosystems are negatively impacted when nutrients are added at concentrations that cannot be assimilated (TNC 2004, p. 7). The effects of pesticides on mussels may be particularly profound, potentially altering metabolic activities or resulting in delayed mortality (Fuller 1974, pp. 252–253; Havlik and Marking 1987, pp. 9–11; Moulton *et al.* 1996, pp. 132–136); commonly used pesticides have been directly implicated in a North Carolina mussel die-off (Fleming *et al.* 1995, pp. 877–879). The Oconee, Ocmulgee, and Ohoopee River systems contain significant acreage in cotton and onion farming. Malathion, one of the most important pesticides used in cotton farming, inhibits physiological activities of mussels (Kabeer *et al.* 1979, pp. 71–72) and may decrease the ability of mussels to respire and obtain food. Some studies have shown that malathion is slightly toxic to some very pollution-intolerant juvenile mussels (*Lampsilis straminea claibornensis*) at minimum concentrations of 22,000 ppm. *Elliptio icterina* had slight problems with minimum concentrations of 30,000 ppm with 96–hour exposure periods.

The operations of the Edwin I. Hatch Nuclear Power Plant (Plant Hatch), located on the Altamaha River in Appling County, may pose a threat to the Altamaha spinymussel. On September 14, 2001, the Service received Joint Public Notice 940003873 from the U.S. Army Corps of Engineers (Corps), Savannah District, describing a project to expand and maintain Plant Hatch's intake basin within the Altamaha River. Implementation of this permit authorized annual dredging of the plant intake basin and authorized removing 33,965 cubic meters (44,424 cubic yards) of material biannually from the intake basin. While the amount of material removed annually is generally far less than the amount permitted (Dodd 2008, pers. comm.), annual dredging could negatively impact the Altamaha spinymussel by decreasing channel stability (creating a potential head cut), altering sediment transport dynamics, increasing sedimentation and turbidity downstream during dredging operations, and decreasing habitat quality for host fishes. It is unknown how far downstream these impacts extend.

Impacts to aquatic fauna through entrainment of potential host fishes and thermal discharges may also occur. Plant Hatch takes in water to create steam, and then uses the steam to generate electricity. Following a cooling process, the water is returned to the river, and although it has been cooled, the water temperature is warmer than the ambient temperature of the river. Plant Hatch has made substantial efforts to reduce thermal discharges through the construction of cooling towers that have significantly reduced the thermal plume. However, thermal discharges could still negatively impact the Altamaha spinymussel from heat stress; higher water temperatures can increase the sensitivity of mussels to certain pollutants (Augspurger *et al.* 2003, p. 2574). These effects would be exacerbated during years of low rainfall, when less water would be available to dissipate the heat of the Plant Hatch effluent. Plant Hatch also monitors fish entrainment, so if the host fish of the spinymussel was known, management efforts could be made to reduce the potential of this impact.

In summary, the loss and modification of habitat is a significant threat to the Altamaha spinymussel. Degradation from sedimentation and contaminants threatens the habitat and water quality necessary to support the Altamaha spinymussel. Sediment from unpaved roads, kaolin mines, past and current agriculture practices, silviculture, and construction sites within the Altamaha River basin can suffocate Altamaha spinymussels and make stable sandbars required by Altamaha spinymussels unstable or change the texture of the substrate, rendering them unsuitable for the species. Contaminants associated with industrial and municipal effluents (e.g., heavy metals, ammonia, chlorine, numerous organic compounds) may cause decreased oxygen, increased acidity, and other water chemistry changes that are lethal to mussels, particularly the highly sensitive early life stages of mussels; exposure to sublethal levels of toxic metals can alter growth, filtration efficiency, enzyme activity, and behavior. As a result we have determined that the present or threatened destruction, modification, or curtailment of the Altamaha spinymussel's habitat or range are threats to the continued existence of the Altamaha spinymussel throughout its range.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The Altamaha spinymussel is not a commercially valuable species, nor are the streams that it inhabits subject to commercial mussel harvesting activities. However, this species has been actively sought for scientific and private collections (Keferl 2008, pers. comm.); such activity may increase if the species becomes more rare. Overcollection may have been a localized factor in the decline of this species, particularly in the Ohoopee River where a 1986 collection consisted of at least 30 live individuals (Keferl 2008, pers. comm.). Although the GDNR can regulate the number of mussels collected with a Scientific Collection Permit, the localized distribution and small size of known populations renders them extremely vulnerable to overzealous recreational or scientific collecting. However, we have no specific information indicating that overcollection is currently a threat or that overcollecting may occur in the future.

Therefore, we find that overutilization for commercial, recreational, scientific, or educational purposes is not a threat to the Altamaha spinymussel at this time.

C. Disease or Predation

Diseases of freshwater mussels are poorly known, and we have no specific information indicating that disease occurs within Altamaha spinymussel populations or poses a threat. Juvenile and adult mussels are preyed upon by some invertebrate species (particularly as newly metamorphosed juveniles), parasites (for example, nematodes, trematodes, and mites), and a few vertebrate species (for example, otter, raccoon, and turtles). However, we have no evidence of any specific declines in the Altamaha spinymussel due to predation.

In summary, diseases and predation of freshwater mussels remains largely unstudied and are not considered a threat to the Altamaha spinymussel.

D. The Inadequacy of Existing Regulatory Mechanisms

The Altamaha spinymussel is listed as a high priority species by the State of Georgia (GDNR 2005, p. 135) and has recently been listed as Endangered under Georgia's Endangered Wildlife Act (EWA). Under the EWA, it is unlawful to intentionally harm, disturb or sell a protected animal, unless authorized, or to cause the destruction of habitat of protected animals on State-owned lands. The EWA specifically states, however, that rules and regulations promulgated under the EWA shall not impede construction of any nature. Thus, protection under the EWA prevents unlawful capture or killing of the listed species, but does not prevent habitat changes that lead to population loss.

Sources of nonpoint source pollution include timber clearcutting, clearing of

riparian vegetation, urbanization, road construction, and other practices that allow sediment to enter streams (TNC 2004, p. 13). Although BMPs for sediment and erosion control are often recommended or required by local ordinances for construction projects, compliance, monitoring, and enforcement of these recommendations are often poorly implemented. Furthermore, Georgia's Erosion and Sediment Control Act exempts commercial forestry activities from the need to acquire permits and meet the minimum requirements of the Erosion and Sediment Control Act (Georgia's BMPs for Forestry 2009, p. 64). Therefore, compliance with BMPs is voluntary and is dependent on education on proper implementation of BMPs to reduce sediment from reaching the Altamaha River (EPD 2007a, p. 28). Although historical row crop-based land use contributes the majority of sediment to the Altamaha River, other sources continue to contribute to the total sediment load (See discussion under Factor A).

Point source discharges within the range of the Altamaha spinymussel have been reduced since the inception of the Federal Clean Water Act (33 U.S.C. 1251 *et seq.*), but this may not provide adequate protection for filter-feeding organisms that can be impacted by extremely low levels of contaminants. Municipal wastewater plants continue to discharge large amounts of effluent and, in some circumstances, in excess of permitted levels (see discussion under Factor A). There is no specific information on the sensitivity of the Altamaha spinymussel to common industrial and municipal pollutants, and very little information on other freshwater mollusks. Current State and Federal regulations regarding pollutants are assumed to be protective of freshwater mollusks; however, this species may be more susceptible to some pollutants than test organisms commonly used in bioassays. For example, several recent studies have suggested that EPA's criteria for ammonia may not be protective of freshwater mussels (Augspurger *et al.* 2003, p. 2571; Newton *et al.* 2003, pp. 2559–2560; Mummert *et al.* 2003, pp. 2548–2552). In a review of the effects of eutrophication on mussels, Patzner and Muller (2004, p. 329) noted that stenoecious (narrowly tolerant) species disappear as waters become more eutrophic. They also refer to studies that associate increased levels of nitrate with the decline and absence of juvenile mussels (Patzner and Muller 2004, pp. 330–333). Other studies have also suggested that early life stages of mussels are sensitive to inorganic chemicals such as chlorine, metals, and ammonia (Keller and Zam 1991, pp. 543–545; Goudreau *et al.* 1993, p. 221; Naimo 1995, pp. 354–355). Therefore, it appears that a lack of adequate research and data prevents existing regulations, such as the Clean Water Act (administered by the EPA and the Corps), from being fully utilized or effective.

In summary, some regulations exist that protect the species and its habitat; however, these regulations enforced by the State provide little direct protection of Altamaha spinymussel and only if protection of the spinymussel will not inhibit economic development. Nonpoint source pollution is not regulated, and the Clean Water Act does not adequately protect the habitat from degradation caused by point source pollutants. As described under Factor A, there have been a number of recent illegal effluent discharges into the Altamaha River basin, in excess of permit limits, that may have impacted the Altamaha spinymussel. Furthermore, The Altamaha Riverkeeper has several pending investigations pertaining to illegal discharges; they are working with violators and pursuing legal settlements when necessary. Thus, existing regulations are not effective at protecting the spinymussel and its habitat from sedimentation and lethal contaminants. Therefore we find the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Altamaha spinymussel throughout its range.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Withdrawal of surface water within the Altamaha Basin for thermoelectric power generation, public water supplies, commercial industrial uses, and agriculture has a dramatic effect on flow rates (TNC 2004, p. 8). No major dams are located on the Altamaha River system within the known historical range of the Altamaha spinymussel; however, the dams that form Sinclair Reservoir on the Oconee River and Jackson and Tobesofkee Reservoirs in the Ocmulgee River basin can influence downstream mussels and their populations through changes in flows that result from electrical power generation and water storage (TNC 2004, p. 6). Within the Altamaha River basin, 1,149 MGD was withdrawn for thermoelectric power generation in 1990 (Marella and Fanning 1990, pp. 14–17). Such removals can cause drastic flow reductions and alterations that may strand mussels on sandbars, resulting in mortality of individuals and harm to populations. Laurens County, Georgia, which includes the City of Dublin, withdrew 2.64 MGD for public water supplies, 12.79 MGD for commercial industrial use, and 5.57 MGD for agricultural uses in 1990 (Marella and Fanning 1990, p. 16) In 1990, the total amount of surface water withdrawn from the Altamaha River basin was 1,315.88 MGD (Marella and Fanning 1990, p. 61). As development pressures continue to grow, water withdrawals are expected to increase.

Drought conditions were prevalent in Georgia between 1998 and 2002, and again in 2007 and 2008, which may have negatively affected the Altamaha spinymussel. Georgia averages 127 cm (50 in) of precipitation annually (U.S. Geological Survey 1986, p. 195; GDNR 2005, p. 41) but received less than 102 cm (40 in) of precipitation annually during recent droughts in 2000, 2002, and 2007 (Knaak and Joiner 2007, pp. 1-2). The Ohoopee River and many other streams in the basin suffered reduced flow rates, and the Ohoopee River was reported to have low water levels with an estimated average depth of 15 cm (6 in) in the main channel during summer surveys (Stringfellow and Gagnon 2001, p. 3). Normally, mussels will bury themselves in the river bottom as a mechanism to survive a drought, but many mussels may have died from desiccation during this prolonged drought (Keferl 2008, pers. comm.). Although the effects of the drought on the Altamaha spinymussel have not been quantified, mussel declines as a direct result of drought have been documented (Golladay *et al.* 2004, p. 494; Haag and Warren 2008, p. 1165). Furthermore, there is a growing concern that climate change may lead to increased frequency of severe storms and droughts (Golladay *et al.* 2004, p. 504; McLaughlin *et al.* 2002, p. 6074; Cook *et al.* 2004, p. 1015). Reduction in local water supplies due to drought is also compounded by increased human demand and competition for surface and ground water resources for power production, irrigation, and consumption (Golladay *et al.* 2004, p. 504).

In addition, low flow conditions provide access to the river margins and channels for all-terrain vehicles (ATV) and four-wheel drive vehicles (TNC 2004, p. 12; Stringfellow and Gagnon 2001, p. 3). During a survey in 2001, Stringfellow and Gagnon (2001, p. 3) observed heavy ATV and four-wheel drive vehicle traffic and high levels of erosion near bridges and homes. They encountered several groups of ATV users, 2 to 12 persons per group, riding in the river channel. Because water

levels were so low, ATV use of the stream extended to all portions of the channel, including pools, runs, and dried sandbars. Observations on the Ohoopee River during low flow in October of 2006 revealed extensive ATV traffic that destroyed mussel beds (Rickard 2006, personal observation). These vehicles may directly crush mussels and may also destabilize stream banks and increase sedimentation rates, burying mussels or impairing feeding, respiration, metabolism, and reproductive success (Stringfellow and Gagnon 2001, p. 3).

Nonindigenous species such as the flathead catfish (*Pylodictis olivaris*) and the Asian clam (*Corbicula fluminea*) have been introduced to the Altamaha Basin and may be adversely affecting the Altamaha spinymussel. Flathead catfish are fast-growing fish that are dominant predators in river systems and are usually exclusively piscivorous in their adult stage (Bourret *et al.* 2008, p. 413; Sakaris *et al.* 2006, p. 867). Since its introduction outside its native range, the flathead catfish has altered the composition of native fish populations through predation (Bourett *et al.* 2008, p. 413; Sakaris *et al.* 2006, p. 867; Sea Grant, 2006, p. 2; Pine *et al.* 2005, p. 902). Flatheads were introduced to the Altamaha Basin in the 1970s (USGS 2009, unpaginated). Although the host fish or fishes of the Altamaha spinymussel have not been identified, in other native freshwater mussels, various centrachids (sunfish), ictalurids (catfish), and catostomids (suckers) have been identified as hosts of the larvae. Other species of mussels in the genus *Elliptio* are known to parasitize various species of *Etheostoma* and *Percina* (darters), and other stream-adapted fish species (Haag and Warren 2003, p. 80). Flatheads introduced in the Altamaha River eliminated bullhead catfish (*Ameiurus sp.*) and caused an 80 percent decline in redbreast sunfish (*Lepomis auritus*) (Sea Grant 2006, p. 2); centrarchids and ictalurids were dominant prey items (Sakaris 2006, p. 867). Other potential centrachid host fish such as the largemouth bass (*Micropterus salmoides*) and bluegill (*L. macrochirus*) have all suffered population declines (Harrison 2001, pers. comm.), as well as the robust redhorse (*Moxostoma robustum*), shortnose sturgeon (*Acipenser brevirostrum*), and shad (*Alosa sapidissima*) (TNC 2004, p. 5). If one or more of these species is the host fish for the Altamaha spinymussel, the spinymussel's breeding success and recruitment could be reduced (Keferl 2001, pers. comm).

Asian clams (*Corbicula*) were observed in the Altamaha River in 1971, and are believed to have been introduced in the Ocmulgee River in 1968 or 1969 (Gardner 1976, p. 117). Surveys have found large numbers of Asian clams (*Corbicula*) in the Altamaha Basin for more than 25 years (Gardner *et al.* 1976, pp. 118–124; Stringfellow and Gagnon 2001, p. 2; O'Brien, pers. comm., 2001). The invasion of *Corbicula* in the Altamaha River has been accompanied by drastic declines in populations of native mussels (Gardner 1976, p. 124). Asian clams may pose a direct threat to native species through competition for available resources (space, minerals, or food), resulting in a decline or local extinction of native mussels (Williams *et al.* 1993, p. 7; Bogan 1993, p. 605).

The linear nature of the Altamaha spinymussel's habitat, reduced range, and very small population size make this species vulnerable to random detrimental or catastrophic events. Small, isolated populations may experience decreased demographic viability (population birth and death rates, immigration and emigration rates, and sex ratios), increased susceptibility of extinction from stochastic environmental factors (e.g., weather events, disease), and an increased threat of extinction from genetic isolation and subsequent inbreeding depression and genetic drift. Surviving populations of spinymussels are small, extremely localized, and vulnerable to habitat modification, toxic spills, progressive degradation from contaminants (see discussions under Factors A and D), and natural catastrophic changes to their habitats (for example, flood scour and drought). Low numbers of individuals may also increase inbreeding and reduce genetic diversity (Lynch 1996, pp. 493–494).

In summary, a variety of natural and manmade factors currently threatens the Altamaha spinymussel. Withdrawal of surface water within the Altamaha Basin for thermoelectric power generation, public water supplies, commercial industrial uses, and agriculture can cause drastic flow reductions and alterations that may strand mussels on sandbars, resulting in mortality of individuals and harm to populations. Recurring drought and water withdrawal, combined with impacts of off-road vehicles, has reduced flows and destabilized stream banks required to support this mussel. Nonindigenous species, such as flathead catfish and the Asian clam, have potentially adversely impacted populations of the spinymussel's host fish, thereby affecting recruitment, and may directly impact the spinymussel through competition for resources. Lastly, because the Altamaha spinymussel population is so small and isolated, any factor (i.e., habitat change or natural and manmade factors) that results in a decline in habitat or individuals may be problematic for the long-term recovery of this species. Therefore, we have determined that other natural and manmade factors are threats to the continued existence of the Altamaha spinymussel throughout its range.

Determination

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Altamaha spinymussel. Section 3 of the Act defines an "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range" and a "threatened species" as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." As described in detail above, the species is currently at risk throughout all of its range due to ongoing threats of habitat destruction and modification (Factor A), inadequacy of existing regulatory mechanisms (Factor D), and other natural or manmade factors affecting its continued existence (Factor E). This species' extremely low and isolated populations make it particularly susceptible to extinction at any time due to threats described under Factors A, D, and E.

The Altamaha spinymussel has only been observed at 22 sites since 2000, despite extensive survey efforts made by several different researchers. Most of these sites are clustered geographically within short reaches of the lower Ocmulgee River and the Altamaha River upstream of U.S. Route 301, and there are long reaches with no or undetectable numbers of Altamaha spinymussels separating these groups of sites. Recent surveys of the Ohoopee River and the analysis presented by Wisniewski *et al.* (2005) suggest that the species may still be declining. Finally, the comparatively low numbers of Altamaha spinymussels collected during recent surveys of the Altamaha and Ocmulgee Rivers further suggests that this species has declined from historical levels. To summarize, researchers were able to find 60 Altamaha spinymussels at a single site on the Altamaha River in 1967; in contrast, the largest number of Altamaha spinymussels observed from a single site on the Altamaha River during the

1990s or 2000s was nine (Albanese 2005, pers. comm.).

The remaining small spinymussel populations are threatened by a variety of factors that are expected to persist indefinitely and impact, or have the potential to impact, remaining spinymussel habitat. These factors include siltation, industrial pollution, municipal effluents, modification of stream channels, pesticides, heavy metals, invasive species, loss of host fish, water withdrawal, recurring drought, and loss of genetic viability. In addition, as described under Factor D, existing regulatory mechanisms are inadequate to ameliorate the current threats to the Altamaha spinymussel and its habitat. We believe the remaining small, isolated populations of spinymussels are not large enough to be resilient against any of the above factors acting on the species itself or its habitat. Furthermore, we believe these threats, particularly the threats to populations resulting from habitat degradation, small population size, and drought, are current and are projected to continue into the future. If the present trends that negatively affect the species and its limited and restricted habitat continue, the Altamaha spinymussel is in immediate danger of extinction throughout all of its range.

Therefore, on the basis of the best available scientific and commercial information, we propose to list the Altamaha spinymussel as an endangered species throughout all of its range. Furthermore, because we find that the Altamaha spinymussel is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range. Consequently, we are proposing to list the Altamaha spinymussel as an endangered species under the Act.

Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(i) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(I) essential to the conservation of the species and

(II) which may require special management considerations or protection; and

(ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing the destruction or adverse modification of critical habitat. Section 7(a)(2) requires consultation on Federal actions that may affect critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, Federal action agency's and the applicant's obligation is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

For inclusion in a critical habitat designation, the habitat within the geographical area occupied by the species at the time it was listed must contain the physical and biological features essential to the conservation of the species, and be included only if those features may require special management considerations or protection. Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the physical and biological features (PBFs) essential for the conservation of the species). Under the Act and regulations at 50 CFR 424.12, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed only when we determine that those areas are essential for the conservation of the species and that designation limited to those areas occupied at the time of listing would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas we should designate as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge.

Habitat is often dynamic, and species may move from one area to another over time. In particular, we recognize that climate change may cause changes in the arrangement of occupied habitat river reaches. Climate change may lead to increased frequency and duration of severe storms and droughts (Golladay *et al.* 2004, p. 504; McLaughlin *et al.* 2002, p. 6074; Cook *et al.* 2004, p. 1015). Drought conditions in 2000–2001 and 2007–2008 greatly reduced the habitat of the spinymussel in the Ohoopee River and rendered the populations vulnerable to anthropogenic disturbances, such as water extraction and vehicles within the riverbed (Keferl 2008, pers. comm.; Stringfellow and Gagnon 2001, p. 3).

The information currently available on the effects of global climate change and increasing temperatures does not make sufficiently precise estimates of

the location and magnitude of the effects. Nor are we currently aware of any climate change information specific to the habitat of the Altamaha spinymussel that would indicate what areas may become important to the species in the future. Therefore, we are unable to determine what additional areas, if any, may be appropriate to include in the proposed critical habitat for this species; however, we specifically request information from the public on the currently predicted effects of climate change on the Altamaha spinymussel and its habitat. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas we may eventually determine, based on scientific data not now available to the Service, that are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be required for recovery of the species.

Areas that are important to the conservation of the species, but are outside the critical habitat designation, will continue to be subject to conservation actions we implement under section 7(a)(1) of the Act. These areas are also subject to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available scientific information at the time of the agency action. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

Prudency Determination

Section 4 of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations at 50 CFR 424.12(a)(1) state that the designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species; or (2) the designation of critical habitat would not be beneficial to the species.

As we have discussed above under the Factor B analysis, there is currently no imminent threat of take attributed to collection or vandalism for this species. Moreover, we have no information to indicate that identification of critical habitat is expected to initiate such a threat to the species. Critical habitat designation identifies those physical and biological features of the habitat essential to the conservation of the Altamaha spinymussel that may require special management and protection. Accordingly, this designation will provide information to individuals, local and State governments, and other entities engaged in activities or long-range planning in areas essential to the conservation of the species. Conservation of the Altamaha spinymussel and essential features of its habitat will require habitat management, protection, and restoration, which will be facilitated by knowledge of habitat locations and the physical and biological features of the habitat. Based on this information, we believe critical habitat would be beneficial to this species. Therefore, we have determined that the designation of critical habitat for the Altamaha spinymussel is prudent.

We have reviewed the available information pertaining to the historical distribution of the Altamaha spinymussel, and the characteristics of the habitat in which it currently survives. This and other information represent the best scientific and commercial data available and lead us to conclude that we have sufficient information necessary to identify specific areas that meet the definition of critical habitat. Therefore, we have determined that the designation of critical habitat is determinable for the Altamaha spinymussel.

Methods

As required by section 4(b) of the Act, we used the best scientific data available in determining occupied areas that contain the features that are essential to the conservation of the Altamaha spinymussel, and unoccupied areas that are essential for the conservation of the Altamaha spinymussel.

We have reviewed the available information pertaining to historical and current distribution, life history, and habitat requirements of this species. Our sources included: Peer-reviewed scientific publications; unpublished survey reports; unpublished field observations by the Service, State, and other experienced biologists; and notes and communications from qualified biologists or experts.

Physical and Biological Features

In accordance with sections 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied at the time of listing to propose as critical habitat, we consider the physical and biological features essential to the conservation of the species which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, and rearing of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distribution of a species.

We consider the physical and biological features to be the primary constituent elements (PCEs) laid out in the appropriate quantity and spatial arrangement essential for the conservation of the species. We derive the PCEs from the biological needs of the species as described in the Background section of this proposal. Unfortunately, little is known of the specific habitat requirements for the Altamaha spinymussel other than that they require flowing water, stable river channels, and adequate water quality. Altamaha spinymussel mussel larvae also require a currently unknown fish host for development to juvenile mussels. To identify the physical and biological needs of the species, we have relied on current conditions at locations where the species survive, the limited information available on this species and its close relatives, and factors associated with the decline and extirpation of these and other aquatic mollusks from extensive portions of the Altamaha River Basin.

Space for Individual and Population Growth and for Normal Behavior

The Altamaha spinymussel is historically associated with the main stem of the Altamaha River and its larger tributaries (greater than 500 cubic feet per second (cfs) Mean Monthly Discharge (MMD)), and does not occur in smaller tributaries. Spinymussels are generally associated with stable, coarse to fine sandy sediments of sandbars, sloughs, and mid-channel islands, and

they appear to be restricted to swiftly flowing water (Sickel 1980, p. 12). Sandbars, sloughs, and mid-channel islands provide space for the spinymussel and also provide cover, shelter, and sites for breeding, reproduction, and growth of offspring. Sandbars, sloughs, and mid-channel islands are dynamic habitats formed and maintained by water quantity, channel slope, and sediment input to the system through periodic flooding, which maintains connectivity and interaction with the flood plain. Changes in one or more of these parameters can result in channel degradation or channel aggradation, with serious effects to mollusks. Therefore, we believe that stream channel stability and floodplain connectivity are essential to the conservation of the Altamaha spinymussel.

Water

The Altamaha spinymussel is a riverine-adapted species that depends upon adequate water flow and is not found in ponds or lakes. Continuously flowing water is a habitat feature associated with all surviving populations of this species. Flowing water maintains the river bottom, sandbars, sloughs, and mid-channel islands habitat where this species is found, transports food items to the sedentary juvenile and adult life stages of the Altamaha spinymussel, removes wastes, and provides oxygen for respiration for this species.

The ranges of standard physical and chemical water quality parameters (such as temperature, dissolved oxygen, pH, and conductivity) that define suitable habitat conditions for the Altamaha spinymussel have not been investigated. However, as relatively sedentary animals, mussels must tolerate the full range of such parameters that occur naturally within the streams where they persist. Both the amount (flow) and the physical and chemical conditions (water quality) where this species currently exists vary widely according to season, precipitation events, and seasonal human activities within the watershed. Conditions across their historical ranges vary even more due to geology, geography, and differences in human population densities and land uses. In general, the species survives in areas where the magnitude, frequency, duration, and seasonality of water flow is adequate to maintain stable sandbar, slough, and mid-channel island habitats (for example, sufficient flow to remove fine particles and sediments without causing degradation), and where water quality is adequate for year-round survival (for example, moderate to high levels of dissolved oxygen, low to moderate input of nutrients, and relatively unpolluted water and sediments). Therefore, adequate water flow and water quality (as defined below) are essential to the conservation of the Altamaha spinymussel.

A natural flow regime that includes periodic flooding and maintains connectivity and interaction with the flood plain is critical for the exchange of nutrients, spawning activities for potential host fish, and sand bar maintenance. In 2007, persistent severe drought conditions throughout the southeastern United States created record low discharges (streamflow) in the Altamaha River at the U.S. Geological Survey (USGS) gauge station in Doctortown, Georgia. During the driest portions of the 2006–2009 drought period, the lowest discharges observed were 25 percent of the MMD for the 77–year period of record for the Doctortown gauge. Despite record low flows, native unionids (mussels) appeared to persist and thrive throughout most of the Lower Altamaha River Basin.

The numeric standards for pollutants and water quality parameters (for example, dissolved oxygen, pH, heavy metals) that have been adopted by the State of Georgia under the Clean Water Act (33 U.S.C. 1251 *et seq.*) represent levels that were established for human protection. Some of these standards (particularly organic and heavy metal contaminates) may not adequately protect Altamaha spinymussels, or are not being appropriately measured, monitored, or achieved in some reaches (see discussions under Factors A and D). While, Georgia's pH criterion is a range of 6.0 to 8.5 under the adopted State standards, data compiled by the GDNR indicate that pH at 159 sites in the Altamaha River Basin averaged 6.9 and ranged from 4.9 to 9.1, which means many sites are outside of the range adopted by the State. Potential contaminants such as ammonia may be more lethal at pH levels at the edges of the observed range. Therefore, we removed outliers from this data set by generating the 10th and 90th percentiles for pH, which were 6.1 to 7.7 standard units. These levels are likely more representative of natural pH levels associated with the Altamaha River Basin and would likely reduce lethal contaminant associations between other chemicals in the watershed.

Current Georgia TMDLs for waters supporting warm-water fishes require a daily average dissolved oxygen (DO) concentration of 5.0 mg/l and a minimum of 4.0 mg/l. The mean DO concentration of 217 measurements made in known spinymussel sites throughout the Altamaha River basin was 8.7 mg/l and ranged from 0.42 mg/l to 33.1 mg/l. The 10th and 90th percentiles for DO were 4.5 and 10.7 mg/l, which are similar to the observations of Golladay *et al.* (2004, pp. 501-503). A daily average DO concentration of 5.0 mg/l and a minimum DO concentration of 4.5 mg/l should provide adequate protection for the Altamaha spinymussel.

Other factors that can potentially alter water quality are droughts and periods of low flow, nonpoint source run-off from adjacent land surfaces (for example, excessive amounts of nutrients, pesticides, and sediment), and random spills or unregulated discharge events. This could be particularly harmful during drought conditions when flows are depressed and pollutants are more concentrated. Adequate water quality is essential for normal behavior, growth, and viability during all life stages of the Altamaha spinymussel.

Food

Unionid mussels, such as the Altamaha spinymussel, filter algae, detritus, and bacteria from the water column (Williams *et al.* 2008, p. 67). Although the life history of the Altamaha spinymussel has not been studied, the life histories of other mussels in the *Elliptio* genus indicate that adult freshwater mussels are filter-feeders, siphoning phytoplankton, diatoms, and other microorganisms from the water column. For the first several months, juvenile mussels employ pedal (foot) feeding, extracting bacteria, algae, and detritus from the sediment (Yeager *et al.* 1994, pp. 217–221; Wisniewski 2008, pers. comm.). Food availability and quality for the Altamaha spinymussel in sandbars, sloughs, and mid-channel island habitats are affected by habitat stability, floodplain connectivity, flow, and water quality.

Sites for Breeding, Reproduction, or Rearing

Freshwater mussels require a host fish for transformation of larval mussels (glochidia) to juvenile mussels (Williams *et al.* 2008, p. 68); therefore, presence of the appropriate host fish is essential to the conservation of the Altamaha spinymussel. The specific fish host(s) for the Altamaha spinymussel is currently unknown; however, other species of mussels in the genus *Elliptio* are known to parasitize various species of *Etheostoma, Percina*, and other stream-adapted fish species (Haag and Warren 2003, p. 80). Eighty-five fish species representing 22 families are

native to the Altamaha River Basin. Five families account for 65 percent of the native fish species in the Altamaha River Basin. The family Cyprinidae comprises 20 percent of the fish species, while Centrarchidae, Catostomidae, Ictaluridae, and Percidae comprise 15 percent, 12 percent, 11 percent, and 8 percent of the species, respectively. These families are known to be suitable hosts for most unionids in North America. All 85 species native to the Altamaha River Basin are still present within the basin.

Juvenile Altamaha spinymussels require stable sandbar, slough, and mid-channel island habitats for growth and survival. Excessive sediments or dense growth of filamentous algae can expose juvenile mussels to entrainment or predation and be detrimental to the survival of juvenile mussels (Hartfield and Hartfield 1996, pp. 372–374). Geomorphic instability can result in the loss of interstitial habitats and juvenile mussels due to scouring or deposition (Hartfield 1993, pp. 372–373). Therefore, stable sandbar, slough, and mid-channel island habitats with low to moderate amounts of filamentous algae growth are essential to the conservation of the Altamaha spinymussel.

Periodic floodplain connectivity that occurs during wet years provides habitats for spawning and foraging activities to fishes requiring floodplain habitats for successful reproduction and recruitment to adulthood. Barko *et al.* (2006, pp. 252–256) found several fish species benefited from the resource exploitation of floodplain habitats that were not typically available for use during hydrologically normal years. Furthermore, Kwak (1988, pp. 243–247) and Slipke *et al.* (2005, p. 289) indicated that periodic inundation of floodplain habitats increased successful fish reproduction, which leads to increased availability of native host fishes for unionid reproduction. However, Rypel *et al.* (2009, p. 502) indicated that unionids tended to exhibit minimal growth during high flow years. Therefore, optimal flooding of these habitats would not be too frequent and should occur at similar frequencies to that of the natural hydrologic regime of the Altamaha River.

Primary Constituent Elements (PCEs) for the Altamaha Spinymussel

Based on the above needs and our current knowledge of the life history, biology, and ecology of the species, we have determined that the Altamaha spinymussel's PCEs are:

(1) Geomorphically stable river channels and banks (channels that maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with stable sandbar, slough, and mid-channel island habitats of course to fine sand substrates with low to moderate amounts of fine sediment and attached filamentous algae.

(2) A hydrologic flow regime (the magnitude, frequency, duration, and seasonality of discharge over time) necessary to maintain benthic habitats where the species are found. To maintain connectivity of rivers with the floodplain, allowing the exchange of nutrients and sediment for sand bar maintenance, food availability, and spawning habitat for native fishes.

(3) Water quality necessary for normal behavior, growth, and viability of all life stages, including specifically temperature (less than 32.6°C (90.68 °F) with less than 2°C (3.6 °F) daily fluctuation)), pH (6.1 to 7.7), oxygen content (daily average DO concentration of 5.0 mg/l and a minimum of 4.0 mg/l), Ammonia: 1.5 mg N/L, 0.22 mg N/L (normalized to pH 8 and 25°C (77°F)) and other chemical characteristics.

(4) The presence of fish hosts (currently unknown) necessary for recruitment of the Altamaha spinymussel. The continued occurrence of diverse native fish assemblages currently occurring in the basin will serve as an indication of host fish presence until appropriate host fishes can be identified for the Altamaha spinymussel.

This proposed designation is designed to conserve those areas containing the PCEs in the appropriate spatial arrangement and quantity essential to the conservation of the species.

Units are designated based on sufficient PCEs being present to support at least one of the species' life history functions. In this proposed designation, all areas contain all PCEs and support multiple life processes.

Special Management Considerations or Protections

When designating critical habitat, we assess whether the areas within the geographical area occupied by the species at the time of listing contain features that are essential to the conservation of the species and whether those features may require special management considerations or protection. None of the critical habitat units proposed for this species have been designated as critical habitat for other species under the Act. Large areas of upland habitat adjacent to the proposed critical habitat are currently protected or receive special management; 13.4 km (8.4 mi.) on both sides of the river and 75.9 km (47.0 mi) on one side of the river only are managed as conservation properties. However, approximately 150.8 km (93.7 mi) have no protection. Various activities in or adjacent to each of the critical habitat units described in this proposed rule may affect one or more of the PCEs and may require special management considerations or protection. Some of these activities include, but are not limited to, those discussed in the "Summary of Factors Affecting the Species," above. Features in all of the proposed critical habitat units may require special management due to threats posed by land-use runoff and point- and nonpoint-source water pollution (see discussion under Factor A and Factor D). Other activities that may affect PCEs in the proposed critical habitat units include those listed in the "Effects of Critical Habitat" section below.

In summary, we find that the areas we are proposing as critical habitat that were occupied at the time of listing contain the features essential to the conservation of the Altamaha spinymussel, and that these features may require special management considerations or protection. Special management consideration or protection may be required to eliminate, or to reduce to negligible levels, the threats affecting each unit and to preserve and maintain the essential features that the proposed critical habitat units provide to the Altamaha spinymussel. Additional discussions of threats facing individual sites are provided in the individual unit descriptions.

Criteria Used to Identify Proposed Critical Habitat

As required by section 4(b) of the Act, we used the best scientific data available in determining areas within the geographical area occupied by the species that contain the physical and biological features essential to the conservation of the Altamaha spinymussel (see above), and areas outside of the geographical area occupied by the species that are essential for the conservation of the species. We are proposing to designate as critical habitat all river channels that are currently occupied by the species. We are also proposing to designate a specific area not currently occupied but that was historically occupied, because we have determined (1) that the area is essential for the conservation of the Altamaha spinymussel, and (2) that designating only occupied habitat is not sufficient to conserve this species.

When determining proposed critical habitat boundaries, we make every effort

to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands usually lack PCEs for endangered or threatened species. Areas proposed for critical habitat for the Altamaha spinymussel include only stream channels within the ordinary high water line, and do not contain any developed areas or structures. The ordinary high water line defines the stream channel and is the point on the stream bank where water is continuous and leaves some evidence such as erosion or aquatic vegetation.

Occupied Stream Reaches Proposed as Critical Habitat

We have defined occupied habitat as those stream reaches known to be currently occupied by the Altamaha spinymussel. We used information from surveys and reports prepared by the GDNR, private contractors, and Service field records to identify the specific locations occupied by the Altamaha spinymussel.

Currently, the limited occupied habitat for this species is extremely scattered and isolated. The Altamaha spinymussel persists in scattered portions of the Altamaha and Ocmulgee Rivers (see *Population Estimates and Status* above). We have determined that all occupied areas contain features essential to the conservation of the species.

River habitats are highly dependent upon upstream and downstream channel habitat conditions for their maintenance. Therefore, where one occurrence record was known from a river reach, we considered the entire reach between the uppermost and lowermost locations as occupied habitat, as discussed below.

The Altamaha spinymussel is currently known to survive in scattered populations along 223 km (138 mi) of the Ocmulgee and upper Altamaha Rivers extending from Telfair and Ben Hill Counties to Long and Wayne Counties, Georgia, except for a 2.7-km (1.7-mi) reach of river in the vicinity of the Plant Hatch facility. From 1997 through 2009, researchers searched 336 sites throughout the basin and documented 57 Altamaha spinymussels, with all occurrences widely scattered throughout its current range. There are no known barriers to movement in this range; therefore, we consider the entire 223-km (138-mi) reach between the uppermost and lowermost collection sites for the Altamaha spinymussel as occupied habitat. In the area proposed for critical habitat, boundaries extend from the nearest downstream landmark at both of ends of the reach.

Unoccupied Stream Reaches Proposed as Critical Habitat

The unoccupied stream reach we are proposing as critical habitat was historically occupied (i.e., prior to 1997; see Table 1). We believe that this reach is essential for Altamaha spinymussel conservation because the range of the Altamaha spinymussel has been severely curtailed, occupied habitats are limited and isolated, and population sizes are extremely small, and the area meets the selection criteria identified below. Furthermore, the occupied habitats are contiguous, placing them at high risk of extirpation and extinction from stochastic events. The inclusion of essential unoccupied areas, in a separate tributary, will provide habitat for population reintroduction, reduce the level of stochastic threats to the species' survival, and decrease the risk of extinction for this species.

The area proposed as critical habitat that is not known to be currently occupied meets all of the following criteria:

(1) It contains sufficient PCEs (for example, such characteristics as geomorphically stable channels, perennial water flows, and appropriate benthic substrates) to support life history functions of the Altamaha spinymussel;

(2) It supports diverse aquatic mollusk communities, including the presence of closely related species requiring PCEs similar to the Altamaha spinymussel; and

(3) It is adjacent to currently occupied areas where there is potential for natural dispersal and reoccupation by the Altamaha spinymussel.

In identifying unoccupied river reaches that could be essential for the conservation of the Altamaha spinymussel, we first considered the availability of potential habitat throughout the historical range that may be suitable for the survival and persistence of the species. We also eliminated from consideration free-flowing rivers or river segments without any historical records of occurrence (that is the Little Ocmulgee River and the upper portions of the Oconee and Ocmulgee Rivers). We eliminated the lower Oconee River and the lower portion of the Altamaha River from consideration because of poor water quality and limited habitat availability.

We have identified 14.4 km (9 mi) of habitat in the Ohoopee River that is currently unoccupied by the Altamaha spinymussel and that meets the criteria for designation as critical habitat. Historical records of Altamaha spinymussel occurred in the lower portions of the Ohoopee River. Keferl (1981, p. 15) referred to the Ohoopee as a possible refugia for the Altamaha spinymussel. However, extreme drought and all-terrain vehicle disturbance appear to have extirpated the species from otherwise suitable habitat. This river habitat meets criteria (1), (2), and (3) identified above and is therefore considered essential to the conservation of the Altamaha spinymussel.

Proposed Critical Habitat Designation

We are proposing four units, totaling approximately 240 km (149 mi), as critical habitat for the Altamaha spinymussel. Georgia owns navigable stream bottoms within the ordinary high water line. All proposed units are considered navigable and, as stated more fully below, critical habitat is proposed for the stream channel within the ordinary high water line only; accordingly, the State of Georgia owns the stream bottoms within all of the areas proposed for designation as critical habitat. Lands adjacent to critical habitat units are either in private ownership or are conservation lands. Table 2 identifies the proposed units, occupancy of the units, and the approximate extent proposed as critical habitat for the Altamaha spinymussel. It also provides information on the ownership of lands adjacent to the river within the proposed unit.

TABLE 2. *Occupancy and ownership of lands adjacent to proposed critical habitat units for Altamaha spinymussel.*

Unit	Location	Occupancy	Total Length km (mi)	Private km (mi)	Conservation/ Private km (mi)	Conservation km (mi)
1	Ocmulgee River	Occupied	110 (68.3)	89.2 (55.4)	14.3 (8.8)	6.4 (4.0)

TABLE 2. *Occupancy and ownership of lands adjacent to proposed critical habitat units for Altamaha spinymussel.*—Continued

Unit	Location	Occupancy	Total Length km (mi)	Private km (mi)	Conservation/ Private km (mi)	Conservation km (mi)
2A	Upper Altamaha River A	Occupied	31.4 (19.5)	2.7 (1.7)	21.6 (13.4)	7.1 (4.4)
2B	Upper Altamaha River B	Occupied	30.7 (19.1)	22.9 (14.2)	7.8 (4.9)	0 (0)
3	Middle Altamaha River	Occupied	50.9 (31.6)	18.8 (11.7)	32.1 (19.9)	0 (0)
4	Lower Ohoopee River	Unoccupied	14.4 (9.0)	14.4 (9.0)	0 (0)	0 (0)
Total			**240.2 (149.3)**	**150.8 (93.7)**	**75.9 (47)**	**13.4 (8.4)**

*Ownership is categorized by private ownership on both banks of the river (Private), conservation area on one bank and private on the other (Conservation/Private), and conservation area on both banks (Conservation).

We present brief descriptions of all units and reasons why they meet the definition of critical habitat for the Altamaha spinymussel. The proposed critical habitat units include the river channels within the ordinary high water line. As defined in 33 CFR 329.11, the ordinary high water mark on nontidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas. For each stream reach proposed as a critical habitat unit, the upstream and downstream boundaries are described generally below. More precise definitions are provided in the Proposed Regulation Promulgation section at the end of this proposed rule.

Unit 1: Ocmulgee River, Ben Hill, Telfair, Coffee, and Jeff Davis Counties

Unit 1 includes 110 km (68.3 mi) of the lower Ocmulgee River from the confluence of House Creek with the Ocmulgee River at Red Bluff Landing in Ben Hill and Telfair Counties, downstream to the Altamaha River (at the confluence of the Oconee and Ocmulgee Rivers, Jeff Davis and Telfair Counties). Live Altamaha spinymussels have been collected from 11 sites within proposed Unit 1, the uppermost near Red Bluff (Thomas and Scott 1965, p. 67). Surveys conducted since 1997 on the Ocmulgee River have yielded 19 Altamaha spinymussels from seven sites (Cammack *et al.* 2001, p. 11; O'Brien 2002, p. 2; Dinkins 2004, pp. 1-1 and 2-1). The entire reach of the Ocmulgee River that composes proposed Unit 1 is occupied. This unit contains all of the PCEs.

The Altamaha spinymussel and its habitat may require special management considerations or protection to address changes in the existing flow regime due to activities such as impoundment, water diversion, or water withdrawal; alteration of water chemistry or water quality; and changes in streambed material composition and quality from activities that would release sediments or nutrients into the water, such as deadhead logging (instream log salvage), construction projects, livestock grazing, timber harvesting, and off-road vehicle use.

Unit 2: Upper Altamaha River, Wheeler, Toombs, Montgomery, Jeff Davis, Appling, and Tatnall Counties

Unit 2 includes a total of 62.1 km (38.6 mi) of the Altamaha River from the confluence of the Ocmulgee and Oconee Rivers (Wheeler and Jeff Davis Counties) downstream to the confluence of the Altamaha and Ohoopee Rivers (Appling and Tattnall Counties).

Unit 2A includes 31.4km (19.5mi) of the Altamaha River from the confluence of the Ocmulgee and Oconee Rivers to the Route 1.

Unit 2B includes 30.7km (19.1mi) of the Altamaha River from the upstream boundary of Moody forest to the confluence of the Altamaha and Ohoopee Rivers.

However, we are not including in this critical habitat designation a stretch of the Altamaha River from U.S. Route 1 downstream to the State-owned property of Moody Forest (2.7 km (1.7 mi)), which includes Plant Hatch. This area does not contain the PCEs necessary for the Altamaha spinymussel due to:

(1) Dredging for intake pipes at Plant Hatch, which destabilizes the river channel and banks, sandbar, slough, and mid-channel island habitats and disrupts the movement of course to fine sand substrates with low to moderate amounts of fine sediment; and

(2) Thermal discharges from Plant Hatch that reduce water quality.

In the upper Altamaha River, historic surveys collected Altamaha spinymussels from 15 sites, while recent surveys have collected live Altamaha spinymussels from only two sites; dead shells have been collected from an additional 14 sites (Sickel 1967; Keferl 1995, p. 3; Cammack *et al.* 2001, p. 11, O'Brien 2002, p. 2; Wisniewski 2009, pers. comm.). The entire reach of the Altamaha River that composes proposed Unit 2 is occupied. This unit contains all of the PCEs.

The Altamaha spinymussel and its habitat may require special management considerations or protection to address changes in the existing flow regime due to activities such as impoundment, water diversion, or water withdrawal; alteration of water chemistry or water quality; and changes in streambed material composition and quality from activities that would release sediments or nutrients into the water, such as deadhead logging (instream log salvage), construction projects, livestock grazing, timber harvesting, and off-road vehicle use.

Unit 3: Middle Altamaha River, Tattnall, Appling, Wayne, and Long Counties

Unit 3 includes approximately 50.9 km (31.6 mi) of the Altamaha River from the confluence with the Ohoopee (Tattnall and Appling Counties) downstream to U.S. Route 301 (Wayne and Long Counties). Historic and recent

surveys of the middle Altamaha River have yielded live Altamaha spinymussels from 26 sites. Dead shells were found at an additional 13 sites (Keferl 1981, p. 14; Keferl 1995, p. 3; Cammack *et al.* 2001, p. 11; O'Brien 2002, p. 2; Wisniewski 2009, pers. comm.). The entire reach of the Altamaha River that composes proposed Unit 3 is occupied. This unit contains all of the PCEs.

The Altamaha spinymussel and its habitat may require special management considerations or protection to address changes in the existing flow regime due to such activities as impoundment, water diversion, or water withdrawal; alteration of water chemistry or water quality; and changes in streambed material composition and quality from activities that would release sediments or nutrients into the water, such as deadhead logging (instream log salvage), construction projects, livestock grazing, timber harvesting, and off-road vehicle use.

Unit 4: Lower Ohoopee River, Tattnall County

Unit 4 includes the lower 14.4 km (9 mi) of the Ohoopee River, from 2.2 km (1.3 mi) upstream of Tattnall County Road 191, downstream to the confluence of the Ohoopee and the Altamaha River in Tattnall County, Georgia.

The Altamaha spinymussel historically occupied this stretch of the Ohoopee River but has not been found here since the mid-1990s (Stringfellow and Gagnon 2001, pp. 1–2) and is considered extirpated. Historic collections were made from seven sites (Keferl 1981, p. 14). Keferl (1981, p. 15) considered the Ohoopee to contain excellent habitat that would serve as a refuge for declining mussel populations. This stretch of the Ohoopee River contains PCEs I, III and IV for the Altamaha spinymussel, and continues to support four species commonly associated with the presence of the Altamaha spinymussel: *Elliptio dariensis* (75 percent of sites with *E. spinosa*), *E. hopetonensis* (93 percent), *E. shepardiana* (80 percent), and *Lampsilis dolabraeformis* (90 percent). *Lampsilis splendida* was found at 72 percent of sites (Wisniewski 2009, pers. comm.). The Ohoopee does not meet state water quality standards for mercury, however, EPA will begin revising needed load reductions in 2011 (EPA 2002b, p. 2).

Proposed critical habitat units 1, 2, and 3 are contiguous, making them very vulnerable to a catastrophic event that could eliminate all known occupied habitat for the Altamaha spinymussel. Therefore, we believe that the stream segment within this unit is essential to the conservation of the species.because re-establishing the Altamaha spinymussel on a separate tributary such as the Ohoopee River would significantly reduce the level of stochastic threats to the species' survival.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. Decisions by the courts of appeals for the Fifth and Ninth Circuits Court of Appeals have invalidated our definition of "destruction or adverse modification" (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service et al.*, 245 F. 3d 434, 442F (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain those physical and biological features that relate to the ability of the area to periodically support the species) to serve its intended conservation role for the species.

If a species is listed or critical habitat is designated, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. As a result of this consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. We define "Reasonable and prudent alternatives" at 50 CFR 402.02 as alternative actions identified during consultation that:

- Can be implemented in a manner consistent with the intended purpose of the action,
- Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,
- Are economically and technologically feasible, and
- Would, in the Director's opinion, avoid jeopardizing the continued existence of the listed species or destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies may sometimes need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Federal activities that may affect Altamaha spinymussel or its designated critical habitat require section 7 consultation under the Act. Activities on State, Tribal, local, or private lands requiring a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from us under section 10 of the Act) or involving some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency) are subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat, and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or permitted, do not require section 7 consultations.

Application of the Jeopardy and Adverse Modification Standard

Jeopardy Standard

Prior to and following listing and designation of critical habitat, the Service applies an analytical framework for jeopardy analyses that relies heavily on the importance of core area populations to the survival and recovery of the species. The section 7(a)(2) analysis is focused not only on these populations but also on the habitat conditions necessary to support them.

The jeopardy analysis usually expresses the survival and recovery needs of the species in a qualitative fashion without making distinctions between what is necessary for survival and what is necessary for recovery. Generally, if a proposed Federal action is incompatible with the viability of the affected core area population(s), inclusive of associated habitat conditions, a jeopardy finding is considered to be warranted, because of the relationship of each core area population to the survival and recovery of the species as a whole.

Adverse Modification Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species, or would retain its current ability for the PCEs to be functionally established. Activities that may destroy or adversely modify critical habitat are those that alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for the Altamaha spinymussel.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that, when carried out, funded, or authorized by a Federal agency, may affect critical habitat and therefore should result in consultation for the Altamaha spinymussel include, but are not limited to:

(1) Actions that would alter the geomorphology of their stream and river habitats. Such activities could include, but are not limited to, instream excavation or dredging, impoundment, channelization, and discharge of fill materials. These activities could cause aggradation or degradation of the channel bed elevation or significant bank erosion, result in entrainment or burial of these mollusks, and cause other direct or cumulative adverse effects to these species and their life cycles.

(2) Actions that would significantly alter the existing flow regime. Such activities could include, but are not limited to, impoundment, water diversion, water withdrawal, and hydropower generation. These activities could eliminate or reduce the habitat necessary for growth and reproduction of these mollusks.

(3) Actions that would significantly alter water chemistry or water quality (for example, temperature, pH, contaminants, and excess nutrients). Such activities could include, but are not limited to, hydropower discharges, or the release of chemicals, biological pollutants, or heated effluents into surface water or connected groundwater at a point source or by dispersed release (nonpoint source). These activities could alter water conditions that are beyond the tolerances of these mollusks and result in direct or cumulative adverse effects to the species and their life cycles.

(4) Actions that would significantly alter stream bed material composition and quality by increasing sediment deposition or filamentous algal growth. Such activities could include, but are not limited to, construction projects, livestock grazing, timber harvest, off-road vehicle use, and other watershed and floodplain disturbances that release sediments or nutrients into the water. These activities could eliminate or reduce habitats necessary for the growth and reproduction of these mollusks by causing excessive sedimentation and burial of the species or their habitats, or nutrification leading to excessive filamentous algal growth. Excessive filamentous algal growth can cause reduced night-time dissolved oxygen levels through respiration and prevent mussel glochidia from settling into stream sediments.

Exemptions

Application of Section 4(a)(3) of the Act

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

There are no Department of Defense lands with a completed integrated natural resources management plan within the proposed critical habitat designation for the Altamaha spinymussel.

Exclusions

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary must designate or make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the legislative history is clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

Under section 4(b)(2) of the Act, we may exclude an area from designated critical habitat based on economic impacts, impacts on national security, and any other relevant impacts. In considering whether to exclude a particular area from the designation, we must identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and determine whether the benefits of exclusion outweigh the benefits of inclusion. If, based on this analysis, we determine that the benefits of exclusion outweigh the benefits of inclusion, we can exclude the area only if such exclusion would not result in the extinction of the species.

Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we are preparing an analysis of the probable economic impacts of the proposed critical habitat designation and related factors.

We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek public review and comment. At

that time, copies of the draft economic analysis will be available for downloading from the Internet at the Federal eRulemaking Portal: *http://www.regulations.gov, or by contacting the Georgia* Ecological Services Office directly (see **FOR FURTHER INFORMATION CONTACT**). During the development of a final designation, we will consider economic impacts, public comments, and other new information, and as an outcome of our analysis of this information, we may exclude areas from the final critical habitat designation under section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19.

National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense (DOD) where a national security impact might exist. In preparing this proposal, we have determined that the lands within the proposed designation of critical habitat for the Altamaha spinymussel are not owned or managed by the DOD, and therefore, we anticipate no impact to national security.

Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors including whether landowners have developed any conservation plans or other management plans for the area, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion of lands from, critical habitat. In addition, we look at any Tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

In preparing this proposed rule, we have determined that there are currently no conservation plans or other management plans for the species, and the proposed designation does not include any Tribal lands or trust resources. We anticipate no impact to Tribal lands, partnerships, or management plans from this proposed critical habitat designation.

Notwithstanding these decisions, as stated under "Public Comments" above, we are seeking specific comments on whether any areas we are proposing for designation should be excluded under section 4(b)(2) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies; groups; and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being or has been designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Federal agencies are required to confer with us informally on any action that is likely to jeopardize the continued existence of a proposed species, or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal activities that may affect the Altamaha spinymussel include, but are not limited to, the carrying out or the issuance of permits for reservoir construction, stream alterations, discharges, wastewater facility development, water withdrawal projects, pesticide registration, mining, and road and bridge construction. It has been the experience of the Service, however, that nearly all section 7 consultations have been resolved so that species have been protected and the project objectives have been met.

Listing the Altamaha spinymussel initiates the development and implementation of a rangewide recovery plan for the species. This plan will bring together Federal, State, and local agency efforts for the conservation of this species. Recovery plans establish a framework for agencies to coordinate their recovery efforts. The plans set recovery priorities and estimate the costs of the tasks necessary to accomplish the priorities. They also describe the site-specific actions necessary to achieve conservation and survival of each species.

Listing also will require us to review any actions on Federal lands and activities under Federal jurisdiction that may affect the Altamaha spinymussel; allow State plans to be developed under section 6 of the Act; encourage scientific investigations of efforts to enhance the propagation or survival of the species under section 10(a)(1)(A) of the Act; and promote habitat conservation plans on non-Federal lands under section 10(a)(1)(B) of the Act.

The Act and its implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions 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 (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are set forth at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species and for incidental take in connection with otherwise lawful activities.

Under the Interagency Cooperative Policy for Endangered Species Act Section 9 Prohibitions, published in the **Federal Register** on July 1, 1994 (59 FR 34272), we identify to the maximum extent practicable those activities that would or would not constitute a violation of section 9 of the Act if the Altamaha spinymussel is listed. The intent of this policy is to increase public awareness as to the effects of this proposed listing on future and ongoing activities within a species' range. We believe, based on the best available information, that the following actions will not result in a violation of the provisions of section 9 of the Act, provided these actions are carried out in accordance with existing regulations and permit requirements:

(1) Possession, delivery, or movement, including interstate transport that does not involve commercial activity, of specimens of these species that were legally acquired prior to the addition of the Altamaha spinymussel to the Federal List of Endangered or Threatened Wildlife;

(2) Discharges into waters supporting the Altamaha spinymussel, provided these activities are carried out in accordance with existing regulations and permit requirements (e.g., activities subject to section 404 of the Clean Water Act and discharges regulated under the National Pollutant Discharge Elimination System (NPDES));

(3) Development and construction activities designed and implemented under State and local water quality regulations and implemented using approved best management practices; and

(4) Any actions that may affect the Altamaha spinymussel that are authorized, funded, or carried out by a Federal agency (such as bridge and highway construction, pipeline construction, hydropower licensing), when the action is conducted in accordance with the consultation requirements for listed species under section 7 of the Act.

Potential activities that we believe will likely be considered a violation of section 9 of the Act if this species becomes listed, include, but are not limited to, the following:

(1) Unauthorized possession, collecting, trapping, capturing, harming, killing, harassing, sale, delivery, or movement, including interstate and foreign commerce, or attempting any of these actions, with the Altamaha spinymussel;

(2) Unlawful destruction or alteration of their habitats (such as unpermitted instream dredging, impoundment, channelization, or discharge of fill material) that impairs essential behaviors, such as breeding, feeding, or sheltering, or results in killing or injuring the Altamaha spinymussel;

(3) Violation of any discharge or water withdrawal permit that results in harm or death to any individuals of this species or that results in degradation of its occupied habitat to an extent that essential behaviors such as breeding, feeding and sheltering are impaired; and

(4) Unauthorized discharges or dumping of toxic chemicals or other pollutants into waters supporting the Altamaha spinymussel that kills or injures or otherwise impairs essential life-sustaining requirements, such as reproduction, food, or shelter.

Other activities not identified above will be reviewed on a case-by-case basis to determine if a violation of section 9 of the Act may be likely to result from such activity should we list the Altamaha spinymussel as endangered. The Service does not consider the description of future and ongoing activities provided above to be exhaustive; we provide them simply as information to the public.

If you have questions regarding whether specific activities will likely violate the provisions of section 9 of the Act, contact the Georgia Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**). Requests for copies of regulations regarding listed species and inquiries about prohibitions and permits should be addressed to the U.S. Fish and Wildlife Service, Ecological Services Division, 1875 Century Boulevard, Atlanta, GA 30345 (phone 404-679-7313; fax 404-679-7081).

Peer Review

In accordance with our joint policy published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of such review is to ensure that our proposed rule is based on scientifically sound data, assumptions, and analyses. We will send copies of this proposed rule to these peer reviewers immediately following publication in the **Federal Register**. We will invite these peer reviewers to comment, during the public comment period, on the specific assumptions and conclusions regarding our proposal to list the Altamaha spinymussel as endangered and our decision regarding critical habitat for this species. We will consider all comments and information received during the comment period on this proposed rule during preparation of a final rulemaking. Accordingly, the final decision may differ from this proposal.

Public Hearings

Section 4(b)(5)(E) of the Act requires us to hold at least one public hearing on this proposal, if properly requested. Requests for public hearings must be made in writing within 45 days of the publication of this proposal in the **Federal Register** (see **DATES**). We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings in the **Federal Register** and local newspapers at least 15 days prior to the first hearing.

Persons needing reasonable accommodations to attend and participate in the public hearings should phone James Rickard at (706) 613-9493 as soon as possible. To allow sufficient time to process requests, please call no later than one week before the hearing date. Information regarding the proposal is available in alternative formats upon request.

Required Determinations

Regulatory Planning and Review — Executive Order 12866

The Office of Management and Budget (OMB) has determined that this rule is not significant under Executive Order 12866 (E.O. 12866). OMB bases its determination upon the following four criteria:

(a) Whether the rule will have an annual effect of $100 million or more on the economy or adversely affect an economic sector, productivity, jobs, the environment, or other units of the government.

(b) Whether the rule will create inconsistencies with other Federal agencies' actions.

(c) Whether the rule will materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients.

(d) Whether the rule raises novel legal or policy issues.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

Small entities include small organizations, such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; as well as small businesses. Small businesses include manufacturing and mining concerns

with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine whether potential economic impacts to these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result. In general, the term "significant economic impact" is meant to apply to a typical small business firm's business operations.

At this time, we lack the specific information necessary to provide an adequate factual basis for determining the potential incremental regulatory effects of the designation of critical habitat for the Altamaha spinymussel to either develop the required RFA finding or provide the necessary certification statement that the designation will not have a significant impact on a substantial number of small business entities. On the basis of the development of our proposal, we have identified certain sectors and activities that may potentially be affected by a designation of critical habitat for the Altamaha spinymussel. These sectors include industrial development and urbanization along with the accompanying infrastructure associated with such projects such as road, stormwater drainage, bridge and culvert construction and maintenance. We recognize that not all of these sectors may qualify as small business entities. However, while recognizing that these sectors and activities may be affected by this designation, we are collecting information and initiating our analysis to determine (1) which of these sectors or activities are or involve small business entities and (2) what extent the effects are related to the Altamaha spinymussel being listed as an endangered species under the Act (baseline effects) or whether the effects are attributable to the designation of critical habitat (incremental). We believe that the potential incremental effects resulting from a designation will be small. As a consequence, following an initial evaluation of the information available to us, we do not believe that there will be a significant impact on a substantial number of small business entities resulting from this designation of critical habitat for the Altamaha spinymussel. However, we will be conducting a thorough analysis to determine if this may in fact be the case. As such, we are requesting any specific economic information related to small business entities that may be affected by this designation and how the designation may impact their business. Therefore, we defer our RFA finding on this proposal designation until completion of the draft economic analysis prepared under section 4(b)(2) of the Act and E.O. 12866.

As discussed above, this draft economic analysis will provide the required factual basis for the RFA finding. Upon completion of the draft economic analysis, we will announce availability of the draft economic analysis of the proposed designation in the **Federal Register** and reopen the public comment period for the proposed designation. We will include with this announcement, as appropriate, an initial regulatory flexibility analysis or a certification that the rule will not have a significant economic impact on a substantial number of small entities accompanied by the factual basis for that determination. We conclude that deferring the RFA finding until completion of the draft economic analysis is necessary to meet the purposes and requirements of the RFA. Deferring the RFA finding in this manner will ensure that we make a sufficiently informed determination based on adequate economic information and provide the necessary opportunity for public comment.

Unfunded Mandates Reform Act

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), the Service makes the following findings:

(a) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute or regulation that would impose an enforceable duty upon State, local, tribal governments, or the private sector and includes both "Federal intergovernmental mandates" and "Federal private sector mandates." These terms are defined in 2 U.S.C. 658(5)-(7). "Federal intergovernmental mandate" includes a regulation that "would impose an enforceable duty upon State, local, or tribal governments" with two exceptions. It excludes "a condition of Federal assistance." It also excludes "a duty arising from participation in a voluntary Federal program," unless the regulation "relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority," if the provision would "increase the stringency of conditions of assistance" or "place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding," and the State, local, or tribal governments "lack authority" to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; AFDC work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. "Federal private sector mandate" includes a regulation that "would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program."

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not jeopardize the continued existence of the species, or destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply; nor would listing these species or designating critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(b) We do not believe that this rule will significantly or uniquely affect small governments because the Altamaha spinymussel only occurs in navigable waters in which the river bottom is owned by the State of Georgia. However, the adjacent upland properties are owned by private entities, the State, or Federal partners (see Table 2). As such, a Small Government Agency Plan is not required. We will, however, further evaluate this issue as we conduct our economic analysis and revise this assessment if appropriate.

Takings

In accordance with Executive Order 12630 ("Government Actions and Interference with Constitutionally Protected Private Property Rights"), we have analyzed the potential takings implications of designating critical habitat for the Altamaha spinymussel in a takings implications assessment. The takings implications assessment concludes that this designation of critical habitat for the Altamaha spinymussel does not pose significant takings implications.

Federalism

In accordance with Executive Order 13132 (Federalism), the rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with appropriate State resource agencies in Georgia. The critical habitat designation may have some benefit to this government in that the areas that contain the features essential to the conservation of the species are more clearly defined, and the PCEs of the habitat necessary to the conservation of the species are specifically identified. While making this definition and identification does not alter where and what federally sponsored activities may occur, it may assist these local governments in long-range planning (rather than waiting for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform

In accordance with E.O. 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are proposing designating critical habitat in accordance with the provisions of the Act. This proposed rule uses standard property descriptions and identifies the PCEs within the designated areas to assist the public in understanding the habitat needs of the Altamaha spinymussel.

Paperwork Reduction Act of 1995

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (NEPA)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with regulations adopted under section 4(a)(1) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Also, it is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses as defined by NEPA in connection with designating critical habitat under section 4(a)(3) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F. 3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, and the Department of Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 "American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act", we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes.

We have determined that there are no tribal lands occupied at the time of listing that contain the features essential for the conservation, and no tribal lands that are unoccupied areas that are essential for the conservation, of the Altamaha spinymussel. Therefore, we have not proposed designation of critical habitat for the Altamaha spinymussel on Tribal lands.

Energy Supply, Distribution, or Use

On May 18, 2001, the President issued an Executive Order (E.O. 13211; Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) on regulations that significantly affect energy supply, distribution, and use. E.O. 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We do not expect this rule to significantly affect energy supplies, distribution, or use. Although two of the proposed units are below hydropower reservoirs, current and proposed operating regimes have been deemed adequate for the species, and therefore their operations will not be affected by the proposed designation of critical habitat. All other proposed units are remote from energy supply, distribution, or use activities. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

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:

(a) Be logically organized;

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

(c) Use clear language rather than jargon;

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

(e) 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 the **ADDRESSES** section. 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.

References Cited

A complete list of all references cited in this rulemaking is available upon request from the Field Supervisor, Georgia Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

Author(s)

The primary author of this package is staff of the Georgia Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

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—[AMENDED]

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

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.11(h) by adding "Spinymussel, Altamaha" in alphabetical order under CLAMS to the List of Endangered and Threatened Wildlife, to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
CLAMS							
*	*	*	*	*	*	*	
Spinymussel, Altamaha	*Elliptio spinosa*	U.S.A. (GA)	NA	E		17.95(f)	NA
*	*	*	*	*	*	*	

3. Amend § 17.95(f) by adding an entry for "Altamaha spinymussel (*Elliptio spinosa*)" in the same order that the species appears in the table at § 17.11(h), to read as set forth below:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(f) *Clams and Snails.*

* * * * *

Altamaha spinymussel (*Elliptio spinosa*)

(1) Critical habitat units are depicted for Appling, Ben Hill, Coffee, Jeff Davis, Long, Montgomery, Tattnall, Telfair, Toombs, Wayne and Wheeler Counties, Georgia, on the maps below.

(2) The primary constituent elements (PCEs) of critical habitat for the Altamaha spinymussel are the habitat components that provide:

(i) Geomorphically stable river channels and banks (channels that maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with stable sandbar, slough, and mid-channel island habitats of course to fine sand substrates with low to moderate amounts of fine sediment and attached filamentous algae.

(ii) A hydrologic flow regime (the magnitude, frequency, duration, and seasonality of discharge over time) necessary to maintain benthic habitats where the species are found. To maintain connectivity of rivers with the floodplain, allowing the exchange of nutrients and sediment for sand bar maintenance, food availability, and spawning habitat for native fishes.

(iii) Water quality necessary for normal behavior, growth, and viability of all life stages, including specifically temperature (less than 32.6°C (90.68 °F) with less than 2°C (3.6 °F) daily fluctuation)), pH (6.1 to 7.7), oxygen content (daily average DO concentration of 5.0 mg/l and a minimum of 4.0 mg/l), Ammonia: 1.5 mg N/L, 0.22 mg N/L (normalized to pH 8 and 25°C (77°F)) and other chemical characteristics.

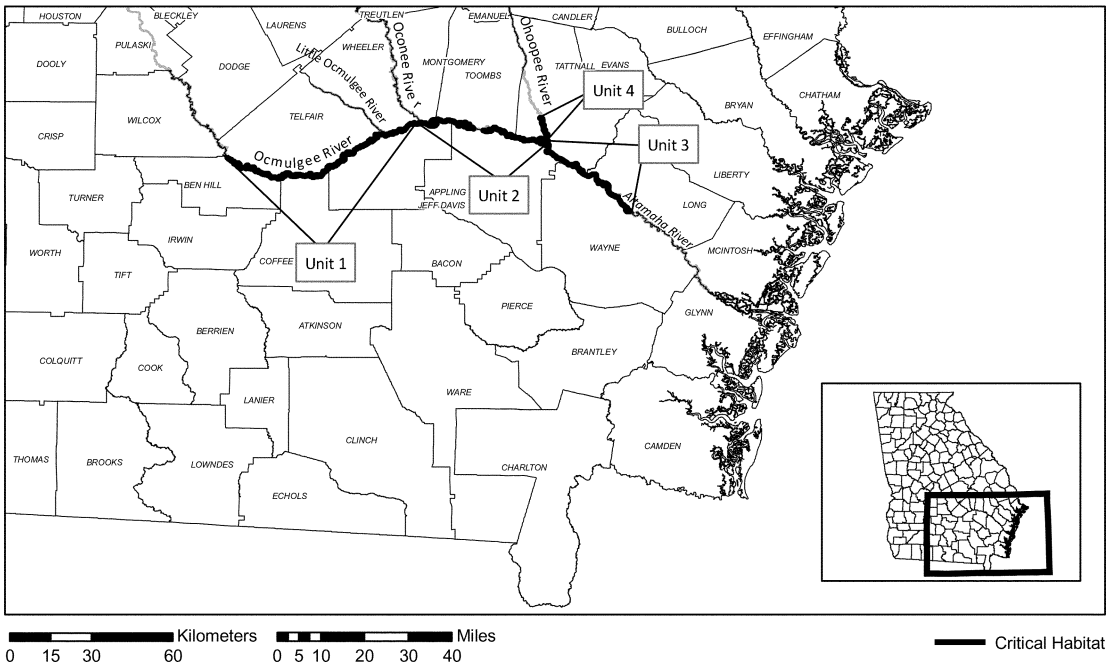
(iv) The presence of fish hosts (currently unknown) necessary for recruitment of the Altamaha spinymussel. The continued occurrence of diverse native fish assemblages currently occurring in the basin will serve as an indication of host fish presence until appropriate host fishes can be identified for the Altamaha spinymussel.

(3) Critical habitat does not include manmade structures existing on the effective date of this rule and not containing one or more of the PCEs, such as buildings, bridges, aqueducts, airports, and roads, and the land on which such structures are located.

(4) *Critical habitat unit maps.* Maps were developed from USGS 7.5 minute quadrangles, and critical habitat unit upstream and downstream limits were then identified by longitude and latitude using decimal degrees.

(5) *Note*: Index map of critical habitat units for the Altamaha spinymussel follows:

Altamaha Spinymussel (*Elliptio spinosa*) Critical Habitat in Georgia

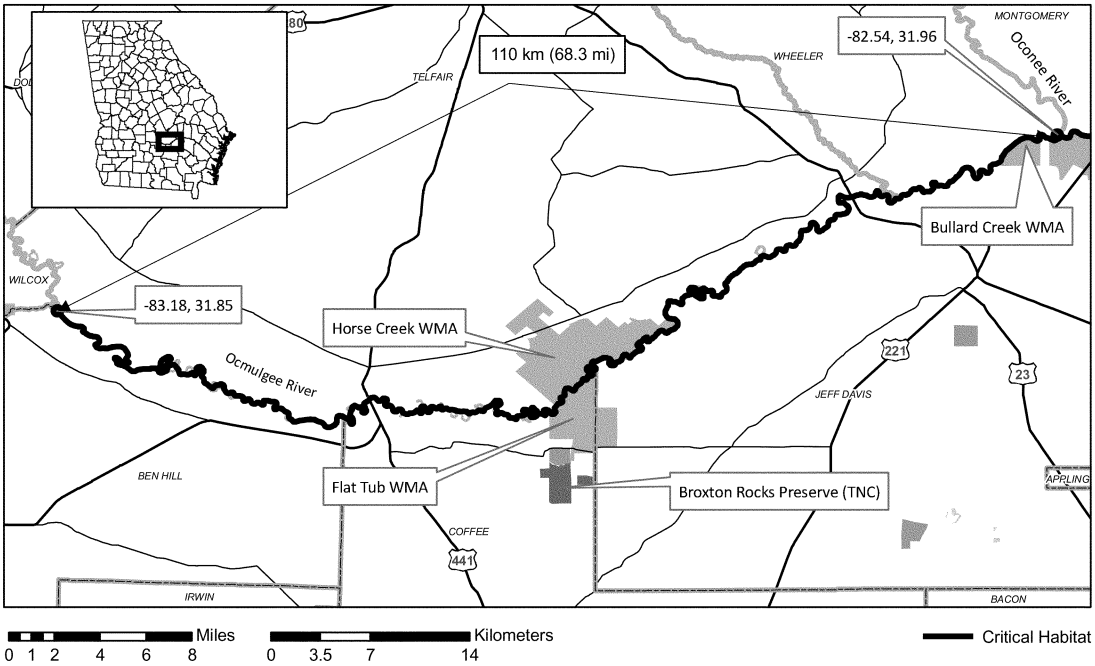


(6) Unit 1: Ocmulgee River, Ben Hill, Telfair, Coffee, and Jeff Davis Counties, Georgia.

(i) Unit 1 includes the channel of the Ocmulgee River from the confluence of House Creek with the Ocmulgee at Red Bluff Landing (longitude -83.18, latitude 31.85), Ben Hill and Telfair Counties, Georgia, downstream to Altamaha River (longitude -82.54, latitude 31.96), at the confluence of the Oconee and Ocmulgee Rivers, Jeff Davis and Telfair Counties, Georgia.

(ii) *Note*: Map of Unit 1 (Ocmulgee River) follows:

Unit 1 of Altamaha Spinymussel (*Elliptio spinosa*) Critical Habitat in Georgia



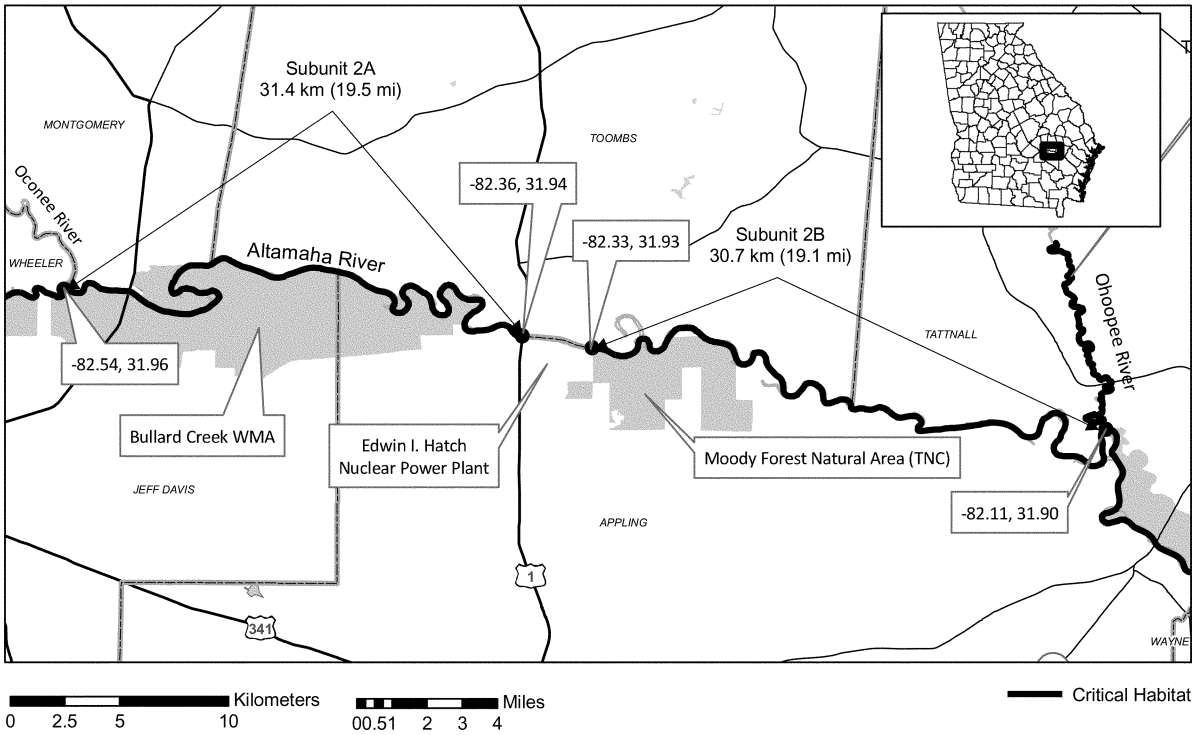
(7) Unit 2: Upper Altamaha River, Wheeler, Toombs, Montgomery, Jeff Davis, Appling, and Tattnall Counties, Georgia.

(i) Unit 2 includes the channel of the Altamaha River from the confluence of the Ocmulgee and Oconee Rivers (longitude -82.54, latitude 31.96), Wheeler and Jeff Davis Counties, Georgia, downstream to the US 1 crossing (longitude -82.36, latitude 31.94), and from the western edged or Moody Forest (longitude -82.33, latitude 31.93) downstream to the confluence of

the Altamaha and Ohoopee Rivers (longitude -82.11, latitude 31.90), Appling and Tattnall Counties, Georgia.

(ii) *Note*: Map of Unit 2 (Upper Altamaha River) follows:

Unit 2 of Altamaha Spinymussel (*Elliptio spinosa*) Critical Habitat in Georgia

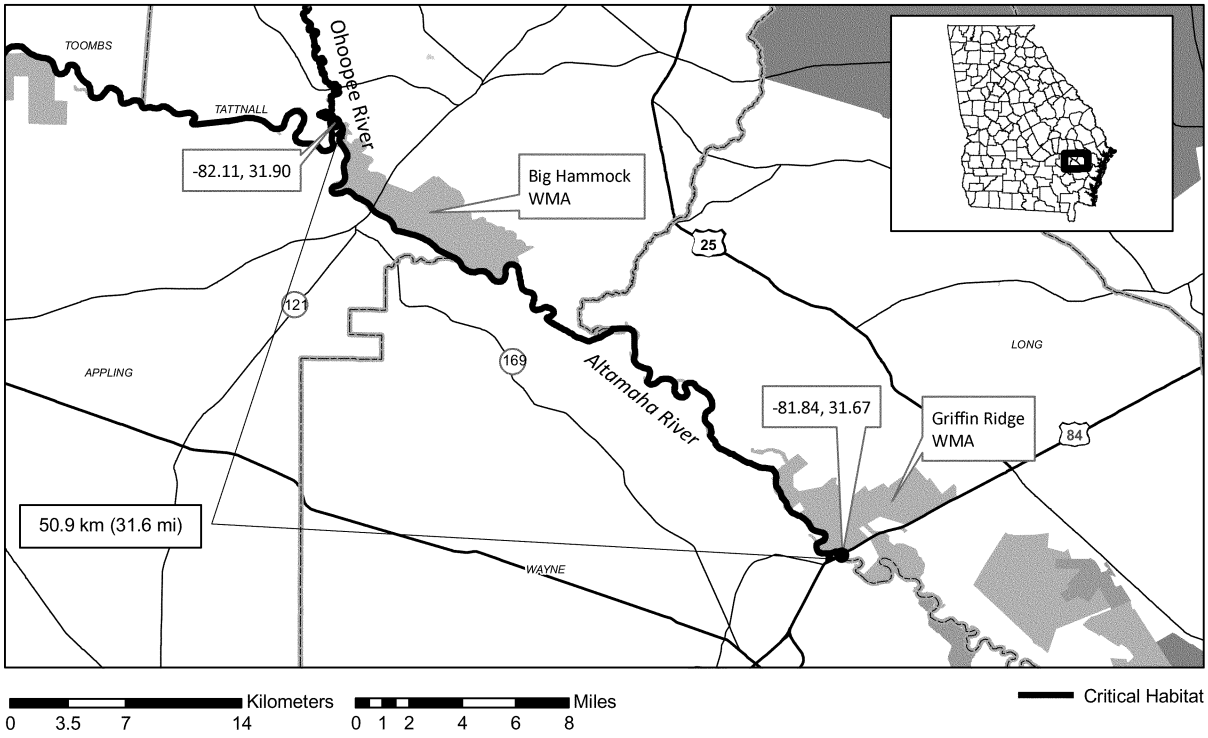


(8) Unit 3: Middle Altamaha River, Tattnall, Appling, Wayne, and Long Counties, Georgia.

(i) Unit 3 includes the channel of Altamaha River, extending from the confluence with the Ohoopee (longitude -82.11, latitude 31.90), Tattnall and Appling Counties, Georgia, downstream to U.S. Route 301 (longitude -81.84, latitude 31.67), Wayne and Long Counties, Georgia.

(ii) *Note*: Map of Unit 3 (Middle Altamaha River) follows:

Unit 3 of Altamaha Spinymussel (*Elliptio spinosa*) Critical Habitat in Georgia

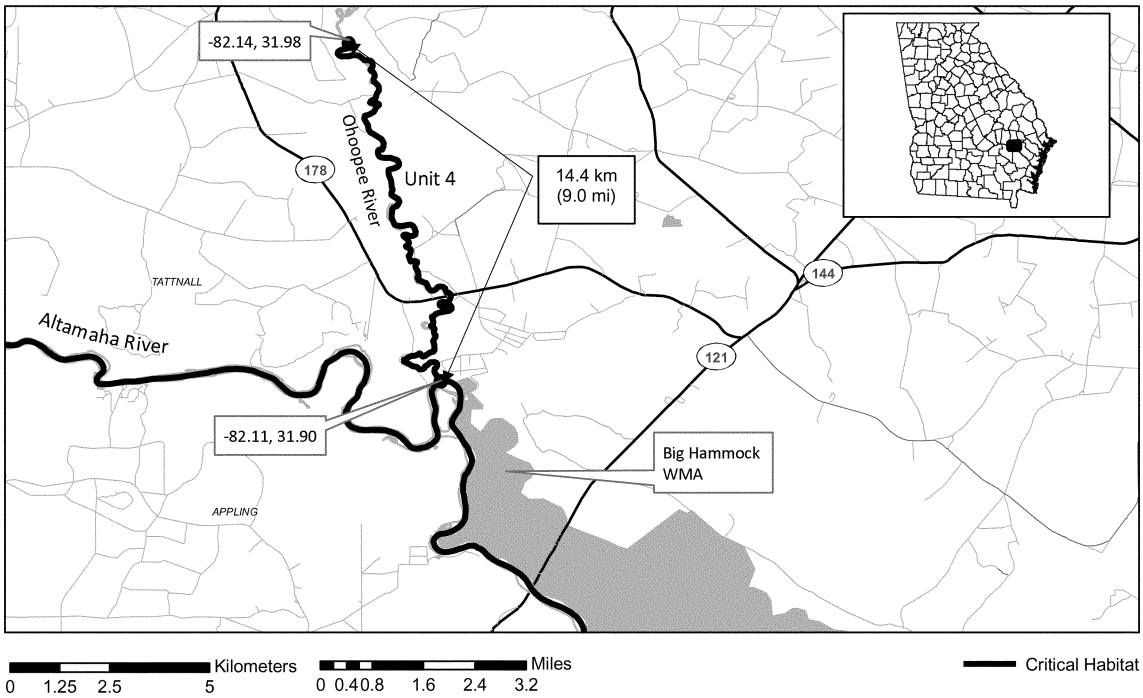


(9) Unit 4: Lower Ohoopee River, Tattnall County, Georgia.

(i) Unit 4 includes the channel of the Ohoopee River, starting 2.2 km (1.3 mi) upstream of Tattnall County Road 191 (longitude -82.14, latitude 31.98), Tattnall County, Georgia, downstream to the confluence of the Ohoopee River with the Altamaha River (longitude -82.11, latitude 31.90), Tattnall County, Georgia.

(ii)*Note*: Map of Unit 4 (Lower Ohoopee River) follows:

Unit 4 of Altamaha Spinymussel (*Elliptio spinosa*) Critical Habitat in Georgia



* * * * *

Dated: August 12, 2010.

Jane Lyder,

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 2010–25026 Filed 10–5–10; 8:45 am]

BILLING CODE 4310–55–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 226

[Docket No. 100924467–0467–02]

RIN 0648–XZ26

Endangered and Threatened Wildlife and Designating Critical Habitat for the Endangered North Atlantic Right Whale

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

ACTION: Notice of 90-day petition finding, and notice of 12-month determination.

SUMMARY: We, the National Marine Fisheries Service (NMFS), announce our 90-day finding and 12-month determination on how to proceed with a petition to revise critical habitat for the North Atlantic right whale (*Eubalaena glacialis*) pursuant to the Endangered Species Act of 1973, as amended (ESA). The petition seeks to revise the existing critical habitat designation by expanding the areas designated as critical feeding and calving habitat areas for the North Atlantic right whale. Additionally, the petition seeks to include a migratory corridor as part of the critical habitat designation for the North Atlantic right whale. Our 90-day finding is that the petition, in conjunction with the information readily available in our files, presents substantial scientific information indicating that the requested revision may be warranted. Our 12-month determination on how to proceed with the petition is that we intend to continue our ongoing rulemaking process with the expectation that a proposed critical habitat rule for the North Atlantic right whale will be submitted to the **Federal Register** for publication in the second half of 2011.

DATES: The finding announced in this document was made on October 6, 2010.

ADDRESSES: This finding is available on the Internet at *http://www.nero.noaa.gov/nero/regs/com.html.* Supporting documentation used to prepare this finding is available for public inspection by appointment during normal business hours at the NMFS Northeast Regional Office, 55 Great Republic Drive, Gloucester, MA 01930, by telephone at 978–281–9328; or by facsimile at 978–281–9394.

FOR FURTHER INFORMATION CONTACT: Mary Colligan, Assistant Regional Administrator for Protected Resources, NMFS, Northeast Regional Office; by mail (*see* **ADDRESSES**): by telephone at 978–281–9328; or facsimile at 978–281–9394; or Marta Nammack, NMFS, HQ, at 301–713–1401.

SUPPLEMENTARY INFORMATION: On October 1, 2009, we received a petition from the Center for Biological Diversity (CBD), Defenders of Wildlife, Humane Society of the United States, Ocean Conservancy, and the Whale and Dolphin Conservation Society (the Petitioners) to revise the designated critical habitat of the North Atlantic right whale (CBD *et al.*, 2009). On October 27, 2009, we sent a letter to the petitioners acknowledging receipt of the petition.

Background

Critical habitat is defined under section 3(5)(A) of the ESA as: "(i)The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (III) specific areas outside the geographical areas occupied by the species at the time it is listed, upon a determination that such areas are essential to the conservation of the species."

Section 4(b)(2) of the ESA requires us to designate and make revisions to critical habitat for listed species on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any particular area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines that the failure to designate such areas as critical habitat will result in the extinction of the species concerned. The ESA provides that NMFS may revise critical habitat from time-to-time as appropriate (section 4(a)(3)(A)(ii)).

Section 4(b)(3)(D)(i) of the ESA requires that, to the maximum extent practicable, within 90 days after receiving a petition to revise critical habitat, the Secretary make a finding as to whether a petition presents substantial scientific information indicating that the revision may be warranted. Our implementing regulations (50 CFR 424.14) define "substantial information" as the "amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted." Our regulations provide further that, in making a 90-day finding on a petition to revise critical habitat, we shall consider whether a petition includes substantial information indicating that: (i) Areas contain physical and biological features essential to, and that may require special management to provide for the conservation of the species; or (ii) areas designated as critical habitat do not contain resources essential to, or do not require special management to provide for, the conservation of the species. In determining whether substantial information exists, we take into account several factors, including information submitted with, and referenced in, the petition and all other information readily available in our files. To the maximum extent practicable, this finding is to be made within 90 days of the receipt of the petition, and the finding is to be published promptly in the **Federal Register**. If we find that a petition presents substantial information indicating that the revision may be warranted, within 12 months after receiving the petition, we are required to determine how we intend to proceed with the requested revision and promptly publish notice of such intention in the **Federal Register**. The statute says nothing more about options or considerations regarding the Secretary's 12-month determination, nor does it prescribe any procedures or timelines for acting on petitions beyond the 12-month finding. *See* ESA Section 4(b)(3)(D)(ii).

Listing and Designated Critical Habitat History

In 1970, right whales, *Eubalaena* spp. were listed as endangered (35 FR 18319; December 2, 1970). We consider this listing to have included two species of right whales, the northern right whale (*Eubalaena glacialis*) and the southern right whale (*Eubalaena australis*) (71 FR at 77706; December 27, 2006). Until the listing was changed in 2008, we considered the northern right whale species (*Eubalaena glacialis*) to consist of two populations—one occurring in the North Atlantic Ocean and the other in the North Pacific Ocean. In 1994, we