DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 226

[Docket No. 080730953–81003–01]

RIN 0648–AX04

Endangered and Threatened Wildlife and Plants: Proposed Rulemaking To Designate Critical Habitat for the Threatened Southern Distinct Population Segment of North American Green Sturgeon

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

ACTION: Proposed rule; request for comments.

SUMMARY: We, the National Marine Fisheries Service (NMFS), propose to designate critical habitat for the threatened Southern distinct population segment of North American green sturgeon (Southern DPS of green sturgeon) pursuant to section 4 of the Endangered Species Act (ESA). Specific areas proposed for designation include: coastal U.S. marine waters within 110 meters (m) depth from Monterey Bay, California (including Monterey Bay), north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to its United States boundary; the Sacramento River, lower Feather River, and lower Yuba River in California; the Sacramento-San Joaquin Delta and Suisun, San Pablo, and San Francisco bays in California; the lower Columbia River estuary; and certain coastal bays and estuaries in California (Humboldt Bay), Oregon (Coos Bay, Winchester Bay, and Yaquina Bay), and Washington (Willapa Bay and Grays Harbor). The areas proposed for designation comprise approximately 325 miles (524 km) of freshwater river habitat, 1,058 square miles (2,739 sq km) of estuarine habitat, 11,927 square miles (30,890 sq km) of marine habitat, and 136 square miles (352 sq km) of habitat within the Yolo and Sutter bypasses (Sacramento River, CA).

We propose to exclude the following areas from designation because the benefits of exclusion outweigh the benefits of inclusion and exclusion will not result in the extinction of the species: coastal U.S. marine waters within 110 m depth from the California/Mexico border north to Monterey Bay, CA, and from the Alaska/Canada border northwest to the Bering Strait; and certain coastal bays and estuaries in California (Tomales Bay, Elkhorn Slough, Noyo Harbor, and the estuaries to the head of the tide in the Eel and Klamath/Trinity rivers), Oregon (Tillamook Bay and the estuaries to the head of the tide in the Rogue, Siuslaw, and Alsea rivers), and Washington (Puget Sound). The areas excluded from the proposed designation comprise approximately 1,057 square miles (2,738 sq km) of estuarine habitat and 396,917 square miles (1,028,015 sq km) of marine habitat.

We acknowledge that there may be costs incurred by those planning to undertake activities in certain areas, in particular Coo Bay, OR, or other areas along the lower Columbia River estuary, as a result of this proposed critical habitat designation for the Southern DPS of green sturgeon that were not captured in our draft economic report. These activities include, but are not limited to, liquefied natural gas (LNG) projects, hydropower activities, and alternative energy projects. We solicit comment on what these additional costs might be and will consider any additional information received in developing our final determination to designate or exclude areas from critical habitat for the Southern DPS of green sturgeon.

DATES: Comments on this proposed rule to designate critical habitat must be received by no later than 5 p.m. Pacific Standard Time on November 7, 2008. A public hearing will be held promptly if any person so requests by October 23, 2008. Notice of the date, location, and time of any such hearing will be published in the **Federal Register** not less than 15 days before the hearing is held.

ADDRESSES: You may submit comments on the proposed rule, identified by RIN 0648–AX04, by any one of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.
- *Fax:* 1–562–980–4027, Attention: Melissa Neuman.
- *Mail:* Submit written information to Chief, Protected Resources Division, Southwest Region, National Marine Fisheries Service, 650 Capitol Mall, Sacramento, CA 95814–4706.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information. NMFS will accept anonymous comments (please enter N/A in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

Reference materials regarding this determination can be obtained via the Internet at: *http://www.nmfs.noaa.gov* or by submitting a request to the Assistant Regional Administrator, Protected Resources Division, Southwest Region, NMFS, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802–4213.

FOR FURTHER INFORMATION CONTACT: Melissa Neuman, NMFS, Southwest Region (562) 980–4115 or Lisa Manning, NMFS, Office of Protected Resources (301) 713–1401.

SUPPLEMENTARY INFORMATION:

Background

We determined that the Southern DPS of green sturgeon is likely to become endangered in the foreseeable future throughout all or a significant portion of its range and listed the species as threatened under the Endangered Species Act (ESA) on April 7, 2006 (71 FR 17757).

Section 4(b)(2) of the ESA requires us to designate critical habitat for threatened and endangered species ''on the basis of the best scientific data available and after taking into consideration the economic impact, impact on national security, and any other relevant impact, of specifying any particular area as critical habitat.'' This section grants the Secretary [of Commerce] discretion to exclude any area from critical habitat if he determines ''the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat.'' The Secretary may not exclude an area if it ''will result in the extinction of the species.''

The ESA defines critical habitat under Section 3(5)(A) as:

> ''(i) the specific areas within the geographical area occupied by the species, at the time it is listed * * *, 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 by the Secretary that such areas are essential for the conservation of the species.''

Once critical habitat is designated, section 7 of the ESA requires Federal

agencies to ensure they do not fund, authorize, or carry out any actions that will destroy or adversely modify that habitat. This requirement is in addition to the ESA section 7 requirement that Federal agencies ensure their actions do not jeopardize the continued existence of listed species.

When the final rule to list the Southern DPS of green sturgeon was published on April 7, 2006, we solicited from the public information that would inform the decision-making process for designating critical habitat for the species. Specifically, we requested information regarding: (1) Green sturgeon spawning habitat within the range of the Southern DPS that was present in the past, but may have been lost over time; (2) biological or other relevant data concerning any threats to the Southern DPS of green sturgeon; (3) quantitative evaluations describing the quality and extent of freshwater and marine habitats (occupied currently or occupied in the past, but no longer occupied) for juvenile and adult green sturgeon as well as information on areas that may qualify as critical habitat in California for the Southern DPS; (4) activities that could be affected by an ESA critical habitat designation; and (5) the economic costs and benefits of additional requirements of management measures likely to result from the designation. No substantive additional comments, beyond those that had been received during prior solicitations for information, were received.

The timeline for completing the proposed critical habitat designation described in this **Federal Register** document was established pursuant to a settlement agreement. On April 17, 2007, the Center for Biological Diversity (CBD) filed a 60-day notice of intent to sue the Secretary of Commerce and NMFS for failing to designate critical habitat and establish protective regulations for the Southern DPS of green sturgeon, as required by the ESA. Pursuant to the settlement agreement reached between the parties, we agreed to make a determination on a proposed critical habitat designation for the Southern DPS of green sturgeon by April 30, 2008, and a final designation by April 30, 2009, which were later extended to September 2, 2008 and June 30, 2009, respectively.

In developing this proposed rule, we evaluated the best available information regarding green sturgeon distribution and habitat requirements, as well as threats to the species. In the Final Rule to list the Southern DPS as threatened under the ESA (71 FR 17757; April 7, 2006), we identified seven extinction risk factors, including: (1) Concentration of spawning into one spawning river, increasing the risk of catastrophic extinction; (2) loss of spawning habitat in the upper Sacramento and Feather rivers due to migration barriers; (3) a general lack of population data, but suspected small population size; (4) entrainment by water project operations; (5) potentially limiting or lethal water temperatures; (6) commercial and recreational fisheries harvest; and (7) toxins and exotic species. This document describes the proposed critical habitat designation, including supporting information on green sturgeon biology, distribution, and habitat use, and the methods used to develop the proposed designation.

Green Sturgeon Natural History

In the following sections, we describe the natural history of green sturgeon as it relates to the habitat needs of this species. The green sturgeon is an anadromous fish species that is long-lived and the most marine oriented sturgeon species in the family Acipenseridae. The North American form of green sturgeon (*Acipenser medirostris;* hereafter, ''green sturgeon'') is related to the Asian form (*A. mikadoi,* also called Sakhalin sturgeon), but is most likely a different species (Artyukhin *et al.*, 2007). Green sturgeon is one of two sturgeon species occurring on the U.S. west coast, the other being white sturgeon (*Acipenser transmontanus*). Adults can reach up to 270 cm in total length (TL) and 175 kg in weight (Moyle, 2002); however, adults greater than 2 m TL and 90 kg in weight are not common (Skinner, 1972). Females are larger and older (approximately 162 cm TL and 16–20 years of age) than males (approximately 152 cm TL and 14–16 years of age) upon reaching reproductive maturity (Van Eenennaam *et al.*, 2006). Maximum ages most likely range from 60 to 70 years or older (Emmett *et al.*, 1991). Until recently, few studies have focused on green sturgeon due to its low abundance and low commercial value compared to white sturgeon.

Green sturgeon range from the Bering Sea, Alaska, to Enseñada, Mexico. A few green sturgeon have been observed off the southern California coast, including fish less than 100 cm TL (Fitch and Lavenberg, 1971, cited in Moyle *et al.*, 1995; Fitch and Schultz, 1978, cited in Moyle *et al.*, 1995). Green sturgeon abundance increases north of Point Conception, CA (Moyle *et al.*, 1995). Green sturgeon occupy freshwater rivers from the Sacramento River up through British Columbia (Moyle, 2002), but spawning has been confirmed in only three rivers, the Rogue River in Oregon and the Klamath and Sacramento rivers in California. Based on genetic analyses and spawning site fidelity (Adams *et al.*, 2002; Israel *et al.*, 2004), NMFS has determined green sturgeon are comprised of at least two distinct population segments (DPSs): (1) A Northern DPS consisting of populations originating from coastal watersheds northward of and including the Eel River (*i.e.*, the Klamath and Rogue rivers) (''Northern DPS''); and (2) a southern DPS consisting of populations originating from coastal watersheds south of the Eel River, with the only known spawning population in the Sacramento River (''Southern DPS''). The Northern DPS and Southern DPS are distinguished based on genetic data and spawning locations, but their distributions outside of natal waters generally overlap with one another (Chadwick, 1959; Miller, 1972; CDFG, 2002; Israel *et al.*, 2004; Moser and Lindley, 2007; Erickson and Hightower, 2007; Lindley *et al.*, 2008.). Both Northern DPS and Southern DPS green sturgeon occupy coastal estuaries and coastal marine waters from southern California to Alaska, including Humboldt Bay, the lower Columbia river estuary, Willapa Bay, Grays Harbor, and coastal waters between Vancouver Island, BC, and southeast Alaska (Israel *et al.*, 2004; Moser and Lindley, 2007; Lindley *et al.*, 2008). Thus, green sturgeon observed in coastal bays, estuaries, and coastal marine waters outside of natal rivers may belong to either DPS. However, the Northern DPS of green sturgeon is not classified as a listed species under the ESA. Tagging or genetics data are needed to determine to which DPS an individual fish belongs. The distribution of green sturgeon, and specifically of the Southern DPS, is described in detail under the section titled ''Geographical Areas Occupied by the Species and Specific Areas within the Geographical Areas Occupied.''

Spawning

Spawning frequency is not well known, but the best information suggests adult green sturgeon spawn every 2–4 years (Lindley and Moser, NMFS, 2004, pers. comm., cited in 70 FR 17386, April 6, 2005; Erickson and Webb, 2007). Beginning in late February, adult green sturgeon migrate from the ocean into fresh water to begin their spawning migrations (Moyle *et al.*, 1995). Spawning occurs from March to July, with peak activity from mid-April to mid-June (Emmett *et al.*, 1991). Spawning populations in North America have been confirmed in the Rogue (Erickson *et al.*, 2002; Farr and

Kern, 2005), Klamath, and Sacramento Rivers (Moyle *et al.*, 1992; CDFG, 2002). Klamath and Rogue River populations appear to spawn within 100 miles (161 km) of the ocean, whereas spawning on the mainstem Sacramento River has been documented over 240 miles (391 km) upstream, both downstream and upstream of Red Bluff Diversion Dam (RBDD) (Brown, 2007). Spawning most likely occurs in fast, deep water (> 3 m deep) over substrates ranging from clean sand to bedrock, with preferences for cobble substrates (Emmett *et al.*, 1991; Moyle *et al.*, 1995). Green sturgeon females produce 59,000 to 242,000 eggs, with fecundity increasing with fish length and age (Van Eenennaam *et al.*, 2006). Green sturgeon eggs are the largest of any sturgeon species, ranging from 4.04 to 4.66 mm in diameter, and have a thin chorionic layer (Van Eenennaam *et al.*, 2001; Van Eenennaam *et al.*, 2006). Eggs are broadcast spawned and likely adhere to substrates or settle into crevices of river bedrock or under gravel (Deng, 2000; Van Eenennaam *et al.*, 2001; Deng *et al.*, 2002). Van Eenennaam *et al.* (2001) reported that green sturgeon eggs have weak adhesiveness, but have since retracted that statement, noting instead that green sturgeon eggs are quite adhesive within a few minutes after release from the female (Van Eenennaam, UC Davis, 2008, pers. comm.). Optimum flow and temperature requirements for spawning and incubation are unclear, but spawning success in most sturgeons is related to these factors (Detlaff *et al.*, 1993). Average monthly water flow during the spawning season (March–July) ranged from 209–1,252 m^3/s in the Sacramento River over a 10-year period from 1996–2006 (*http://waterdata.usgs.gov*) and from 31–260 m^3/s in the Rogue River over a 4-year period from 2001–2004 (Erickson and Webb, 2007). Spawning may be triggered by small increases in water flow (Schaffter, 1997; Brown, 2007). Adult sturgeon occur in the Sacramento River when temperatures are between 8–14 °C (Moyle, 2002). In laboratory studies, the optimal thermal range for green sturgeon development was from 11 to 17–18 °C, and temperatures ≥ 23 °C were lethal to embryos (Van Eenennaam *et al.*, 2005).

Development of Early Life Stages

Green sturgeon embryos have poor swimming ability and exhibit a strong drive to remain in contact with structure, preferring cover and dark habitats to open bottom and illuminated habitats in laboratory experiments (Kynard *et al.*, 2005). In these experiments, early embryos made no effort to swim, suggesting embryos remain in spawning areas to develop (Kynard *et al.*, 2005). Newly emerged green sturgeon larvae in the laboratory hatched 144–216 hours, or 6–9 days, after fertilization (incubation temperatures ranged from 15–15.7 °C) and ranged from 12.6–15 mm in length (Van Eenennaam *et al.*, 2001; Deng *et al.*, 2002). Unlike other acipenserids, newly hatched larvae did not swim up toward the water surface within the first 5 days post hatch (dph), but remained in clumps near the bottom. By 5–6 dph, larvae exhibited nocturnal behavior, remaining clumped near the bottom during the day and actively swimming at night (Van Eenennaam *et al.*, 2001; Deng *et al.*, 2002). Upon onset of feeding at 10 dph (23.0–25.2 mm length) (Deng *et al.*, 2002), larvae are believed to initiate downstream migration from spawning areas, staying close to the bottom and periodically interrupting downstream movement with upstream foraging bouts (Kynard *et al.*, 2005).

Little is known about larval rearing habitat and requirements. Temperatures of 15 °C are believed to be optimal for larval growth, whereas temperatures below 11 °C or above 19 °C may be detrimental for growth (Cech *et al.*, 2000, cited in COSEWIC, 2004). Substrate may also affect growth and foraging behavior. Larvae reared on flat-surfaced substrates (slate-rock and glass) had higher specific growth rates than larvae reared on cobble or sand, most likely due to lower foraging effectiveness and greater activity levels in cobble and sand substrates (Nguyen and Crocker, 2007). Larvae complete metamorphosis to the juvenile stage at 45 dph, when fish range from 62.5 to 94.4 mm in length (Deng *et al.*, 2002).

Juveniles continue to grow rapidly, reaching 300 mm in length in one year and over 600 mm within 2–3 years (based on Klamath River fish; Nakamoto *et al.*, 1995). Laboratory experiments indicate juveniles may occupy fresh to brackish water at any age, but are able to completely transition to salt water at around 1.5 years in age (about 533 dph; mean TL of 75.2 plus or minus 0.7 cm) (Allen and Cech, 2007). Early juveniles at 100 and 170 dph tolerated prolonged exposure to saltwater, but experienced decreased growth and activity levels and, in some cases, mortality for individuals at 100 dph (Allen and Cech, 2007). These results were consistent with the Nakamoto *et al.* (1995) study indicating that juveniles rear in fresh and estuarine waters before dispersing into salt water at about 1 to 4 years in age (about 300 to 750 mm in length). Early juveniles also exhibit nocturnal behavior in all activities and initiate directed downstream movement in the fall, most likely to migrate to wintering habitats (Kynard *et al.*, 2005). Juvenile green sturgeon prefer temperatures of 15–16 °C with an upper limit of 19 °C, beyond which swimming performance may decrease and cellular stress may occur (Mayfield and Cech, 2004; Allen *et al.*, 2006). Laboratory measurements of oxygen consumption by juveniles ranged from 61.78 plus or minus 4.65 mg O_2 hr^{-1} kg^{-1} to 76.06 plus or minus 7.63 mg O_2 hr^{-1} kg^{-1}, with a trend of increasing oxygen consumption with increasing body mass (Allen and Cech, 2006). Studies on juvenile feeding in San Pablo Bay, Suisun Bay, and the Sacramento-San Joaquin Delta identified prey items of shrimp (*Neomysis awatchensis, Crangon franciscorum*), amphipods (*Corophium* spp., *Photis californica*), isopods (*Synidotea laticauda*), clams (*Macoma* spp.), annelid worms, and unidentified crabs and fishes (Ganssle, 1966; Radtke, 1966).

Adults and Subadults

To distinguish among different life stages, we used the following definitions. Adults are sexually mature fish, subadults are sexually immature fish that have entered into coastal marine waters (usually at 3 years of age), and juveniles are fish that have not yet made their first entry into marine waters. Green sturgeon spend a large portion of their lives in coastal marine waters as subadults and adults between spawning episodes. Subadult male and female green sturgeon spend at least approximately 6 and 10 years, respectively, at sea before reaching reproductive maturity and returning to freshwater to spawn for the first time (Nakamoto *et al.*, 1995). Adult green sturgeon spend as many as 2–4 years at sea between spawning events (Lindley and Moser, NMFS, pers. comm., cited in 70 FR 17386, April 6, 2005; Erickson and Webb, 2007). The average length at maturity for green sturgeon is estimated to be 152 cm TL (14–16 years) for males and 162 cm TL (16–20 years) for females in the Klamath River (Van Eenennaam *et al.*, 2006), and 145 cm TL for males and 166 cm TL for females in the Rogue River (Erickson and Webb, 2007). The maximum size of subadults is approximately 167 cm TL (Erickson and Webb, 2007).

Adults typically begin their upstream spawning migration in the spring and either migrate downstream after spawning, or reside within the river over the summer. In the Klamath River, tagged adults exhibited four movement patterns: (1) Upstream spawning migration; (2) spring outmigration to the

ocean; (3) summer holding (June to November) in deep pools with eddy currents (for those that do not exhibit post-spawning spring outmigration); and (4) outmigration after summer holding (Benson *et al.*, 2007). Use of summer holding sites has also been observed in the Rogue River (Erickson *et al.*, 2002) and in the Sacramento River (R. Corwin, U.S. Bureau of Reclamation (USBR), 2008, pers. comm.). Deep holding pools greater than 5 m in depth are believed to be important for spawning as well as for summer holding (R. Corwin, USBR, and B. Poytress, USFWS, 2008, pers. comm). Winter outmigration from the Klamath and Rogue rivers was initiated when temperatures dropped to 10–12 °C or below 10 °C, and when discharge increased to greater than 100 m^3/s (Erickson *et al.*, 2002; Benson *et al.*, 2007). In the Sacramento River, tagged adult green sturgeon were present through November and December, before moving downstream with increased winter flows (M. Thomas, UC Davis, and R. Corwin, USBR, 2008, pers. comm.). Subadults may also migrate upstream into the natal rivers, but for unknown purposes. Adults and subadults also occupy the San Francisco, San Pablo, and Suisun bays and the Sacramento-San Joaquin Delta adjacent to the Sacramento River in the summer months (although some individuals that remain in the river until late fall/early winter migrate through the bays and Delta during their winter outmigration), during which time they are likely feeding and optimizing growth (Kelly *et al.*, 2007; Moser and Lindley, 2007).

Outside of their natal waters, adult and subadult green sturgeon inhabit coastal marine habitats from the Bering Sea to southern California, primarily occupying waters within 110 meters (m) depth (Erickson and Hightower, 2007). Tagged subadults and adults have been documented to make sustained coastal migrations of up to 100 km per day (S. Lindley and M. Moser, NMFS, pers. comm., cited in BRT, 2005), but may also reside in aggregation/feeding areas in coastal marine waters for several days at a time (S. Lindley and M. Moser, NMFS, 2008, pers. comm.). There is evidence that green sturgeon inhabit certain estuaries on the northern California, Oregon, and Washington coasts during the summer, and inhabit coastal marine waters along the central California coast and between Vancouver Island, British Columbia, and southeast Alaska over the winter (Lindley *et al.*, 2008). Green sturgeon likely inhabit these estuarine and marine waters to feed and to optimize growth (Moser and Lindley, 2007). Particularly large aggregations of green sturgeon occur in the Columbia River estuary and Washington estuaries and include green sturgeon from all known spawning populations (Moser and Lindley, 2007). Although adult and subadult green sturgeon occur in coastal marine waters as far north as the Bering Sea, green sturgeon have not been observed in freshwater rivers or coastal bays and estuaries in Alaska.

Within bays and estuaries, adults and subadults inhabit a wide range of environmental conditions. Adults and subadults in Willapa Bay and the San Francisco Bay Estuary occurred over the entire temperature and salinity range (11.9–21.9 °C; 8.8–32.1 ppt), experienced large fluctuations in temperature and salinity (up to 2 °C h^{-1} and 1 practical salinity unit (PSU) h^{-1}), and occupied a wide range of dissolved oxygen levels from 6.54 to 8.98 mg O_2/l (Kelly *et al.*, 2007; Moser and Lindley, 2007). Tagged adults and subadults in the San Francisco Bay Estuary occupied shallow depths during directional movements but stayed close to the bottom during non-directional movements, presumably because they were foraging (Kelly *et al.*, 2007). Similar to freshwater rivers, winter outmigration from Willapa Bay was initiated when water temperatures dropped below 10 °C (Moser and Lindley, 2007).

Adult and subadult green sturgeon in the Columbia River estuary, Willapa Bay, and Grays Harbor feed on crangonid shrimp, burrowing thalassinidean shrimp (primarily the burrowing ghost shrimp (*Neotrypaea californiensis*), but possibly other related species), amphipods, clams, juvenile Dungeness crab (*Cancer magister*), anchovies, sand lances (*Ammodytes hexapterus*), lingcod (*Ophiodon elongatus*), and other unidentified fishes (P. Foley, unpublished data cited in Moyle *et al.*, 1995; C. Tracy, minutes to USFWS meeting, cited in Moyle *et al.*, 1995; O. Langness, WDFW, pers. comm., cited in Moser and Lindley, 2007; Dumbauld *et al.*, 2008). Burrowing ghost shrimp made up about 50 percent of the stomach contents of green sturgeon sampled in 2003 (Dumbauld *et al.*, 2008). Subadults and adults feeding in bays and estuaries may be exposed to contaminants that may affect their growth and reproduction. Studies on white sturgeon in estuaries indicate that the bioaccumulation of pesticides and other contaminants adversely affects growth and reproductive development and may result in decreased reproductive success (Fairey *et al.*, 1997; Foster *et al.*, 2001a; Foster *et al.*, 2001b; Kruse and Scarnecchia, 2002; Feist *et al.*, 2005; Greenfield *et al.*, 2005). Green sturgeon are believed to experience similar risks from contaminants (70 FR 17386, April 6, 2005).

Methods and Criteria Used to Identify Critical Habitat

In the following sections, we describe the relevant definitions and requirements in the ESA and our implementing regulations and the key methods and criteria used to prepare this proposed critical habitat designation. In accordance with section 4(b)(2) of the ESA and our implementing regulations (50 CFR 424.12(a)), this proposed rule is based on the best scientific information available concerning the Southern DPS's present and historical range, habitat, and biology, as well as threats to its habitat. In preparing this rule, we reviewed and summarized current information on the green sturgeon, including recent biological surveys and reports, peer-reviewed literature, NMFS status reviews for green sturgeon (Moyle *et al.*, 1992; Adams *et al.*, 2002; BRT, 2005), and the proposed and final listing rules for the green sturgeon (70 FR 17386, April 6, 2005; 71 FR 17757, April 7, 2006).

To assist with the evaluation of critical habitat, we convened a critical habitat review team (CHRT) of nine Federal biologists from NMFS, the U.S. Fish and Wildlife Service (USFWS), and the USBR with experience in green sturgeon biology, consultations, and management, or experience in the critical habitat designation process. The CHRT used the best available scientific and commercial data and their best professional judgment to: (1) Verify the geographical area occupied by the Southern DPS at the time of listing; (2) identify the physical and biological features essential to the conservation of the species; (3) identify specific areas within the occupied area containing those essential physical and biological features; (4) verify whether the essential features within each specific area may need special management considerations or protection and identify activities that may affect these essential features; (5) evaluate the conservation value of each specific area; and (6) determine if any unoccupied areas are essential to the conservation of the Southern DPS. The CHRT's evaluation and conclusions are described in detail in the following sections.

Physical or Biological Features Essential for Conservation

Joint NMFS–USFWS regulations, at 50 CFR 424.12(b), state that in determining what areas are critical habitat, the agencies ''shall consider those physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection.'' Features to consider may 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, rearing of offspring, germination, or seed dispersal; and generally; (5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.'' The regulations also require the agencies to ''focus on the principal biological or physical constituent elements'' (hereafter referred to as ''Primary Constituent Elements'' or PCEs) within the specific areas considered for designation that are essential to conservation of the species, which ''may include, but are not limited to, the following: * * * spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, * * * geological formation, vegetation type, tide, and specific soil types.''

The CHRT recognized that the different systems occupied by green sturgeon at specific stages of their life cycle serve distinct purposes and thus may contain different PCEs. Based on the best available scientific information, the CHRT identified PCEs for freshwater riverine systems, estuarine areas, and nearshore marine waters.

The specific PCEs essential for the conservation of the Southern DPS in freshwater riverine systems include:

(1) *Food resources.* Abundant prey items for larval, juvenile, subadult, and adult life stages. Although the CHRT lacked specific data on food resources for green sturgeon within freshwater riverine systems, juvenile green sturgeon most likely feed on fly larvae (based on nutritional studies on the closely-related white sturgeon) (J. Stuart, NMFS, 2008, pers. comm.). Food resources are important for juvenile foraging, growth, and development during their downstream migration to the Delta and bays. In addition, subadult and adult green sturgeon may forage during their downstream post-spawning migration, while holding within deep pools (Erickson *et al.*, 2002), or on non-spawning migrations within freshwater rivers. Subadult and adult green sturgeon in freshwater rivers most likely feed on benthic prey species similar to those fed on in bays and estuaries, including shrimp, clams, and benthic fishes (Moyle *et al.*, 1995; Erickson *et al.*, 2002; Moser and Lindley, 2007; Dumbauld *et al.*, 2008).

(2) *Substrate type or size (i.e., structural features of substrates).* Substrates suitable for egg deposition and development (*e.g.*, bedrock sills and shelves, cobble and gravel, or hard clean sand, with interstices or irregular surfaces to ''collect'' eggs and provide protection from predators, and free of excessive silt and debris that could smother eggs during incubation), larval development (*e.g.*, substrates with interstices or voids providing refuge from predators and from high flow conditions), and subadults and adults (*e.g.*, substrates for holding and spawning). For example, spawning is believed to occur over substrates ranging from clean sand to bedrock, with preferences for cobble (Emmett *et al.*, 1991; Moyle *et al.*, 1995). Eggs likely adhere to substrates, or settle into crevices between substrates (Deng, 2000; Van Eenennaam *et al.*, 2001; Deng *et al.*, 2002). Both embryos and larvae exhibited a strong affinity for benthic structure during laboratory studies (Van Eenennaam *et al.*, 2001; Deng *et al.*, 2002; Kynard *et al.*, 2005), and may seek refuge within crevices, but use flat-surfaced substrates for foraging (Nguyen and Crocker, 2007). For more details, see the sections on ''Spawning'' and ''Development of early life stages''.

(3) *Water flow.* A flow regime (*i.e.*, the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) necessary for normal behavior, growth, and survival of all life stages. Such a flow regime should include stable and sufficient water flow rates in spawning and rearing reaches to maintain water temperatures within the optimal range for egg, larval, and juvenile survival and development (11–19 °C) (Cech *et al.*, 2000, cited in COSEWIC, 2004; Mayfield and Cech, 2004; Van Eenennaam *et al.*, 2005; Allen *et al.*, 2006). Sufficient flow is needed to reduce the incidence of fungal infestations of the eggs (Deng *et al.*, 2002; Parsley *et al.*, 2002). In addition, sufficient flow is needed to flush silt and debris from cobble, gravel, and other substrate surfaces to prevent crevices from being filled in (and potentially suffocating the eggs; Deng *et al.*, 2002) and to maintain surfaces for feeding (Nguyen and Crocker, 2007). Successful migration of adult green sturgeon to and from spawning grounds is also dependent on sufficient water flow. As stated in the subsection titled ''Spawning'', spawning success is most certainly associated with water flow and water temperature. Spawning in the Sacramento River is believed to be triggered by increases in water flow to about 400 m^3/s (average daily water flow during spawning months: 198–306 m^3/s) (Brown, 2007). Post-spawning downstream migrations are triggered by increased flows, ranging from 174–417 m^3/s in the late summer (Vogel, 2005) and greater than 100 m^3/s in the winter (Erickson *et al.*, 2002; Benson *et al.*, 2007; M. Thomas and R. Corwin, USBR, 2008, pers. comm.).

(4) *Water quality.* Water quality, including temperature, salinity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages (see sections on ''Development of early life stages'' and ''Adults and subadults''). Suitable water temperatures would include: Stable water temperatures within spawning reaches (wide fluctuations could increase egg mortality or deformities in developing embryos); temperatures within 11–17 °C (optimal range = 14–16 °C) in spawning reaches for egg incubation (March–August) (Van Eenennaam *et al.*, 2005); temperatures below 20 °C for larval development (Werner *et al.*, 2007); and temperatures below 24 °C for juveniles (Mayfield and Cech, 2004; Allen *et al.*, 2006a). Suitable salinity levels range from fresh water (< 3 parts per thousand (ppt)) for larvae and early juveniles (about 100 dph) to brackish water (10 ppt) for juveniles prior to their transition to salt water. Prolonged exposure to higher salinities may result in decreased growth and activity levels and even mortality (Allen and Cech, 2007). Adequate levels of dissolved oxygen are needed to support oxygen consumption by fish in their early life stages (ranging from 61.78 to 76.06 mg O_2 hr^{-1} kg^{-1} for juveniles) (Allen and Cech, 2007). Suitable water quality would also include water containing acceptably low levels of contaminants (*i.e.*, pesticides, organochlorines, elevated levels of heavy metals, etc.; acceptably low levels would be determined by NMFS on a case-by-case basis) that may disrupt normal development of embryonic, larval, and juvenile stages of green sturgeon. Water with acceptably low levels of such contaminants would protect green sturgeon from adverse impacts on growth, reproductive development, and reproductive success (*e.g.*, reduced egg size and abnormal gonadal development) likely to result

from exposure to contaminants (Fairey *et al.*, 1997; Foster *et al.*, 2001a; Foster *et al.*, 2001b; Kruse and Scarnecchia, 2002; Feist *et al.*, 2005; Greenfield *et al.*, 2005).

(5) *Migratory corridor.* A migratory pathway necessary for the safe and timely passage of Southern DPS fish within riverine habitats and between riverine and estuarine habitats (*e.g.*, an unobstructed river or dammed river that still allows for safe and timely passage). We define safe and timely passage to mean that human-induced impediments, either physical, chemical or biological, do not alter the migratory behavior of the fish such that its survival or the overall viability of the species is compromised (*e.g.*, an impediment that compromises the ability of fish to reach their spawning habitat in time to encounter con-specifics and reproduce). Unimpeded migratory corridors are necessary for adult green sturgeon to migrate to and from spawning habitats, and for larval and juvenile green sturgeon to migrate downstream from spawning/rearing habitats within freshwater rivers to rearing habitats within the estuaries.

(6) *Water depth.* Deep (≥ 5 m) holding pools for both upstream and downstream holding of adult or subadult fish, with adequate water quality and flow to maintain the physiological needs of the holding adult or subadult fish (see section titled Adults and Subadults). Deep pools of ≥ 5 m depth with high associated turbulence and upwelling are critical for adult green sturgeon spawning and for summer holding within the Sacramento River (R. Corwin, USBR, and B. Poytress, USFWS, 2008, pers. comm.). Adult green sturgeon in the Klamath and Rogue rivers also occupy deep holding pools for extended periods of time, presumably for feeding, energy conservation, and/or refuge from high water temperatures (Erickson *et al.*, 2002; Benson *et al.*, 2007).

(7) *Sediment quality.* Sediment quality (*i.e.*, chemical characteristics) necessary for normal behavior, growth, and viability of all life stages. This includes sediments free of elevated levels of contaminants (*e.g.*, selenium, polyaromatic hydrocarbons (PAHs), and organochlorine pesticides) that may adversely affect green sturgeon. Based on studies of white sturgeon, bioaccumulation of contaminants from feeding on benthic species may adversely affect the growth, reproductive development, and reproductive success of green sturgeon (see section titled Adult and Subadults).

The specific PCEs essential for the conservation of the Southern DPS in estuarine areas include:

(1) *Food resources.* Abundant prey items within estuarine habitats and substrates for juvenile, subadult, and adult life stages. As described previously (see *Green Sturgeon Natural History*), prey species for juvenile, subadult, and adult green sturgeon within bays and estuaries primarily consist of benthic invertebrates and fishes, including crangonid shrimp, burrowing thalassinidean shrimp (particularly the burrowing ghost shrimp), amphipods, isopods, clams, annelid worms, crabs, sand lances, and anchovies. These prey species are critical for the rearing, foraging, growth, and development of juvenile, subadult, and adult green sturgeon within the bays and estuaries.

(2) *Water flow.* Within bays and estuaries adjacent to the Sacramento River (*i.e.*, the Sacramento-San Joaquin Delta and the Suisun, San Pablo, and San Francisco bays), sufficient flow into the bay and estuary to allow adults to successfully orient to the incoming flow and migrate upstream to spawning grounds. Sufficient flows are needed to attract adult green sturgeon to the Sacramento River to initiate the upstream spawning migration (Kohlhorst *et al.*, 1991, cited in CDFG, 2002; J. Stuart, NMFS, 2008, pers. comm.).

(3) *Water quality.* Water quality, including temperature, salinity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages. Suitable water temperatures for juvenile green sturgeon should be below 24 °C. At temperatures above 24 °C, juvenile green sturgeon exhibit decreased swimming performance (Mayfield and Cech, 2004) and increased cellular stress (Allen *et al.*, 2006). Suitable salinities range from brackish water (10 ppt) to salt water (33 ppt). Juveniles transitioning from brackish to salt water can tolerate prolonged exposure to salt water salinities, but may exhibit decreased growth and activity levels (Allen and Cech, 2007), whereas subadults and adults tolerate a wide range of salinities (Kelly *et al.*, 2007). Subadult and adult green sturgeon occupy a wide range of dissolved oxygen levels, but may need a minimum dissolved oxygen level of at least 6.54 mg O_2/l (Kelly *et al.*, 2007; Moser and Lindley, 2007). As described above, adequate levels of dissolved oxygen are also required to support oxygen consumption by juveniles (ranging from 61.78 to 76.06 mg O_2 hr^{-1} kg^{-1}) (Allen and Cech, 2007). Suitable water quality also includes water with acceptably low levels of contaminants (*e.g.*, pesticides, organochlorines, elevated levels of heavy metals; acceptable low levels as determined by NMFS on a case-by-case basis) that may disrupt the normal development of juvenile life stages, or the growth, survival, or reproduction of subadult or adult stages.

(4) *Migratory corridor.* A migratory pathway necessary for the safe and timely passage of Southern DPS fish within estuarine habitats and between estuarine and riverine or marine habitats. We define safe and timely passage to mean that human-induced impediments, either physical, chemical or biological, do not alter the migratory behavior of the fish such that its survival or the overall viability of the species is compromised (*e.g.*, an impediment that compromises the ability of fish to reach thermal refugia by the time they enter a particular life stage). Within the bays and estuaries adjacent to the Sacramento River, unimpeded passage is needed for juvenile green sturgeon to migrate from the river to the bays and estuaries and eventually out into the ocean. Passage within the bays and the Delta is also critical for adults and subadults for feeding and summer holding, as well as to access the Sacramento River for their upstream spawning migrations and to make their outmigration back into the ocean. Within bays and estuaries outside of the Delta and the Suisun, San Pablo, and San Francisco bays, unimpeded passage is necessary for adult and subadult green sturgeon to access feeding areas, holding areas, and thermal refugia, and to ensure passage back out into the ocean.

(5) *Water depth.* A diversity of depths necessary for shelter, foraging, and migration of juvenile, subadult, and adult life stages. Subadult and adult green sturgeon occupy a diversity of depths within bays and estuaries for feeding and migration. Tagged adults and subadults within the San Francisco Bay estuary primarily occupied waters over shallow depths of less than 10 m, either swimming near the surface or foraging along the bottom (Kelly *et al.*, 2007). In a study of juvenile green sturgeon in the Delta, relatively large numbers of juveniles were captured primarily in shallow waters from 1–3 meters deep, indicating juveniles may require even shallower depths for rearing and foraging (Radtke, 1966). Thus, a diversity of depths is important to support different life stages and habitat uses for green sturgeon within estuarine areas.

(6) *Sediment quality.* Sediment quality (*i.e.*, chemical characteristics) necessary for normal behavior, growth, and viability of all life stages. This includes sediments free of elevated levels of contaminants (*e.g.*, selenium, PAHs, and organochlorine pesticides) that can cause adverse effects on all life stages of green sturgeon (see description of ''Sediment quality'' for riverine habitats above).

The specific PCEs essential for the conservation of the Southern DPS in coastal marine areas include:

(1) *Migratory corridor.* A migratory pathway necessary for the safe and timely passage of Southern DPS fish within marine and between estuarine and marine habitats. We define safe and timely passage to mean that human-induced impediments, either physical, chemical or biological, do not alter the migratory behavior of the fish such that its survival or the overall viability of the species is compromised (*e.g.*, an impediment that compromises the ability of fish to reach abundant prey resources during the summer months in Northwest Pacific estuaries). Subadult and adult green sturgeon spend the majority of their time in marine and estuarine waters outside of their natal rivers. Unimpeded passage within coastal marine waters is critical for subadult and adult green sturgeon to access oversummering habitats within coastal bays and estuaries and overwintering habitat within coastal waters between Vancouver Island, BC, and southeast Alaska. Access to and unimpeded movement within these areas is also necessary for green sturgeon to forage for prey and make lengthy migrations necessary to reach other foraging areas (Lindley *et al.*, 2008). Passage is also necessary for subadults and adults to migrate back to San Francisco Bay and to the Sacramento River for spawning.

(2) *Water quality.* Coastal marine waters with adequate dissolved oxygen levels and acceptably low levels of contaminants (*e.g.*, pesticides, organochlorines, heavy metals that may disrupt the normal behavior, growth, and viability of subadult and adult green sturgeon). Based on studies of tagged subadult and adult green sturgeon in the San Francisco Bay estuary, CA, and Willapa Bay, WA, subadults and adults may need a minimum dissolved oxygen level of at least 6.54 mg O_2/l (Kelly *et al.*, 2007; Moser and Lindley, 2007). As described above, exposure to and bioaccumulation of contaminants may adversely affect the growth, reproductive development, and reproductive success of subadult and adult green sturgeon. Thus, waters with acceptably low levels of such contaminants (as determined by NMFS on a case-by-case basis) are required for the normal development of green sturgeon for optimal survival and spawning success.

(3) *Food resources.* Abundant prey items for subadults and adults, which may include benthic invertebrates and fishes. Green sturgeon spend more than half their lives in coastal marine and estuarine waters, spending from 3–20 years at a time out at sea. Abundant food resources are important to support subadults and adults over long-distance migrations, and may be one of the factors attracting green sturgeon to habitats far to the north (off the coast of Vancouver Island and Alaska) and to the south (Monterey Bay, CA, and off the coast of southern California) of their natal habitat. Although the CHRT lacked direct evidence, prey species likely include benthic invertebrates and fishes similar to those fed upon by green sturgeon in bays and estuaries (*e.g.*, shrimp, clams, crabs, anchovies, sand lances) (see section on ''Adults and subadults'').

Geographical Area Occupied by the Species and Specific Areas Within the Geographical Area Occupied

One of the first steps in the critical habitat designation process is to define the geographical area occupied by the species at the time of listing. The CHRT relied on data from tagging and tracking studies, genetic analyses, field observations, records of fisheries take and incidental take (*e.g.*, in water diversion activities), and opportunistic sightings to provide information on the current range and distribution of green sturgeon and of the Southern DPS. The range of green sturgeon extends from the Bering Sea, Alaska, to Enseñada, Mexico. Within this range, Southern DPS fish are confirmed to occur from Graves Harbor, Alaska, to Monterey Bay, California (Lindley *et al.*, 2008; S. Lindley and M. Moser, NMFS, 2008, unpublished data), based on telemetry data and genetic analyses. Green sturgeon have been observed northwest of Graves Harbor, AK, and south of Monterey Bay, CA, but have not been identified as belonging to either the Northern or Southern DPS. The CHRT concluded that there are no barriers or habitat conditions preventing Southern DPS fish detected in Monterey Bay, CA, or off Graves Harbor, AK, from moving further south or further north, and that the green sturgeon observed in these areas could belong to either the Northern DPS or the Southern DPS. Based on this reasoning, the geographical area occupied by the Southern DPS was defined as the entire range occupied by green sturgeon (*i.e.*, from the Bering Sea, AK, to Enseñada, Mexico), encompassing all areas where the presence of Southern DPS fish has been confirmed, as well as areas where the presence of Southern DPS fish is likely (based on the presence of confirmed Northern DPS fish or green sturgeon of unknown DPS).

Areas outside of the United States cannot be designated as critical habitat (50 CFR 424.12(h)). Thus, the occupied geographical area under consideration for this designation is limited to areas from the Bering Sea, AK, to the California/Mexico border, excluding Canadian waters. For freshwater rivers, the CHRT concluded that green sturgeon of each DPS are likely to occur throughout their natal river systems, but, within non-natal river systems, are likely to be limited to the estuaries and would not occur upstream of the head of the tide. For the purposes of our evaluation of critical habitat, we defined all green sturgeon observed upstream of the head of the tide in freshwater rivers south of the Eel River (*i.e.*, the Sacramento River and its tributaries) as belonging to the Southern DPS, and all green sturgeon observed upstream of the head of the tide in freshwater rivers north of and including the Eel River as belonging to the Northern DPS. Thus, for freshwater rivers north of and including the Eel River, the areas upstream of the head of the tide were not considered part of the geographical area occupied by the Southern DPS.

The CHRT then identified ''specific areas'' within the geographical area occupied. To be eligible for designation as critical habitat under the ESA, each specific area must contain at least one PCE that may require special management considerations or protection. For each specific occupied area, the CHRT noted whether the presence of Southern DPS green sturgeon is confirmed or likely (based on the presence of Northern DPS fish or green sturgeon of unknown DPS) and verified that each area contained one or more PCE(s) that may require special management considerations or protection. The following paragraphs provide a brief description of the presence and distribution of Southern DPS green sturgeon within each area and summarize the CHRT's methods for delineating the specific areas.

Freshwater Rivers, Bypasses, and the Delta

Green sturgeon occupy several freshwater river systems from the Sacramento River, CA, north to British Columbia, Canada (Moyle, 2002). As

described in the previous section, Southern DPS green sturgeon occur throughout their natal river systems (*i.e.*, the Sacramento River, lower Feather River, and lower Yuba River), but are believed to be restricted to the estuaries in non-natal river systems (*i.e.*, north of and including the Eel River). The CHRT defined the specific areas in the Sacramento, Feather, and Yuba rivers in California to include riverine habitat from the river mouth upstream to and including the furthest known site of historic and/or current sighting or capture of green sturgeon, as long as the site is still accessible. The specific areas were extended upstream to a geographically identifiable point. The riverine specific areas include areas that offer at least periodic passage of Southern DPS fish to upstream sites and include sufficient habitat necessary for each riverine life stage (*e.g.*, spawning, egg incubation, larval rearing, juvenile feeding, passage throughout the river, and/or passage into and out of estuarine or marine habitat).

The CHRT delineated specific areas where Southern DPS green sturgeon occur, including: the Sacramento River, the Yolo and Sutter bypasses, the lower Feather River, and the lower Yuba River. The CHRT also delineated a specific area in the Sacramento-San Joaquin Delta. The mainstem Sacramento River is the only area where spawning by Southern DPS green sturgeon has been confirmed and where all life stages of the Southern DPS are supported. Beginning in March and through early summer, adult green sturgeon migrate as far upstream as the Keswick Dam (rkm 486) to spawn (Brown, 2007). Spawning has been confirmed by the collection of larvae and juveniles at the RBDD and the Glenn-Colusa Irrigation District (GCID) (CDFG, 2002; Brown, 2007) and by the collection of green sturgeon eggs downstream of the RBDD (Brown, 2007; B. Poytress, USFWS, 2008, pers. comm.). The Sacramento River provides important spawning, holding, and migratory habitat for adults and important rearing, feeding, and migratory habitat for larvae and juveniles. The Yolo and Sutter bypasses adjacent to the lower Sacramento River also serve as important migratory corridors for Southern DPS adults, subadults, and juveniles on their upstream or downstream migration and provide a high macroinvertebrate forage base that may support green sturgeon feeding. Southern DPS adults occupy the lower Feather River up to Oroville Dam (rkm 116) and the lower Yuba River up to Daguerre Dam (rkm 19). Based on observations of Southern DPS adults occurring right up to the dams and of spawning behavior by adults on the Feather River, spawning may have occurred historically in the lower Feather River and, to a lesser extent, in the lower Yuba River. However, no green sturgeon eggs, larvae, or juveniles have ever been collected within these rivers. Further downstream, the Sacramento-San Joaquin Delta provides important rearing, feeding, and migratory habitat for juveniles, which occur throughout the Delta in all months of the year. Subadults and adults also occur throughout the Delta to feed, grow, and prepare for their outmigration to the ocean. The draft biological report provides more detailed information on each specific area, including a description of the PCEs present, special management considerations or protection that may be needed, and the presence and distribution of Southern DPS green sturgeon. The draft biological report is available upon request (see **ADDRESSES**), via our Web site at *http://swr.nmfs.noaa.gov*, or via the Federal eRulemaking Web site at *http://www.regulations.gov*. For additional discussion of the special management considerations or protection that may be needed for the PCEs, please see also the description of ''Special management considerations or protection'' below.

Bays and Estuaries

Southern DPS green sturgeon occupy coastal bays and estuaries from Monterey Bay, CA, to Puget Sound, WA. In the Central Valley, CA, juvenile, subadult, and adult life stages occur throughout the Suisun, San Pablo, and San Francisco bays. These bays support the rearing, feeding, and growth of juveniles prior to their first entry into marine waters. The bays also serve as important feeding, rearing, and migratory habitat for subadult and adult Southern DPS green sturgeon.

Outside of their natal system, subadult and adult Southern DPS fish occupy coastal bays and estuaries in California, Oregon, and Washington, including estuarine waters at the mouths of non- natal rivers. Subadult and adult Southern DPS green sturgeon have been confirmed to occupy the following coastal bays and estuaries: Monterey Bay, CA; Humboldt Bay, CA; Coos Bay, OR; Winchester Bay, OR; the lower Columbia River estuary; Willapa Bay, WA; Grays Harbor, WA; and Puget Sound, WA (Chadwick, 1959; Miller, 1972; Lindley *et al.*, 2008; Pinnix, 2008; S. Lindley and M. Moser, NMFS, 2008, unpublished data). The presence of Southern DPS green sturgeon is likely (based on limited records of confirmed Northern DPS fish or green sturgeon of unknown DPS), but not confirmed within the following coastal bays and estuaries: Elkhorn Slough, CA; Tomales Bay, CA; Noyo Harbor, CA; Eel River estuary, CA; Klamath/Trinity River estuary, CA; Rogue River estuary, OR; Siuslaw River estuary, OR; Alsea River estuary, OR; Yaquina Bay, OR; and Tillamook Bay, OR (Emmett *et al.*, 1991; Moyle *et al.*, 1992; Adams *et al.*, 2002; Erickson *et al.*, 2002; Yoklavich *et al.*, 2002; Farr and Kern, 2005).

Subadult and adult green sturgeon are believed to occupy coastal bays and estuaries outside of their natal waters for feeding, optimization of growth, and thermal refugia (Moser and Lindley, 2007; Lindley *et al.*, 2008). Occupied coastal bays and estuaries north of San Francisco Bay, CA, contain oversummering habitats for subadults and adults, whereas coastal bays and estuaries south of San Francisco Bay, CA, are believed to contain overwintering habitats (Lindley *et al.*, 2008). The largest concentrations of green sturgeon, including Southern DPS fish, occur within the lower Columbia River estuary, Willapa Bay, and Grays Harbor (Emmett *et al.*, 1991; Adams *et al.*, 2002; WDFW and ODFW, 2002; Israel and May, 2006; Moser and Lindley, 2007; Lindley *et al.*, 2008). Large numbers of green sturgeon also occur within Winchester Bay, Coos Bay, and Humboldt Bay (Moyle *et al.*, 1992; Rien *et al.*, 2000; Farr *et al.*, 2001; Adams *et al.*, 2002; Farr and Rien, 2002, 2003; Farr and Kern, 2004, 2005; Israel and May, 2006; Lindley *et al.*, 2008; Pinnix, 2008). Smaller numbers of green sturgeon occur in Tomales Bay, CA (Moyle *et al.*, 1992), Yaquina Bay (Emmett *et al.*, 1991; Rien *et al.*, 2000; Farr *et al.*, 2001; Farr and Rien, 2002, 2003; Farr and Kern, 2004, 2005), and Puget Sound, WA (S. Lindley and M. Moser, NMFS, 2008, unpublished data). Based on limited available data, green sturgeon presence is believed to be rare in the following bays and estuaries: Elkhorn Slough, CA; Noyo Harbor, CA; Siuslaw River estuary, OR; Alsea River estuary, OR; and Tillamook Bay, OR (Emmett *et al.*, 1991; Moyle *et al.*, 1992; Rien *et al.*, 2000; Farr *et al.*, 2001; Farr and Rien, 2002; Yoklavich *et al.*, 2002; Farr and Rien, 2003; Farr and Kern, 2004, 2005). Green sturgeon are present in the estuaries of the Eel River, Klamath/Trinity rivers, and Rogue River, but are believed to most likely belong to the Northern DPS. This is based on the fact that the Eel, Klamath/Trinity, and Rogue rivers are spawning rivers for the Northern DPS and that, to

date, no tagged Southern DPS subadults or adults have been detected in the estuaries of the three rivers, although Southern DPS fish have been observed in coastal marine waters just outside the mouth of the Klamath River (S. Lindley, NMFS, 2008, pers. comm.).

The CHRT included all coastal bays and estuaries for which there was evidence to confirm the presence of green sturgeon, noting where there were confirmed Southern DPS fish, confirmed Northern DPS fish, or confirmed green sturgeon of unknown DPS. As stated in the previous section, based on our definitions for the Northern DPS and Southern DPS, any green sturgeon observed upstream of the head of the tide in freshwater rivers north of and including the Eel River were assigned to the Northern DPS. Thus, areas upstream of the head of the tide on these rivers were not included as part of the occupied specific areas for the Southern DPS. Each specific area was defined to extend from the mouth of the bay or estuary upstream to the head of the tide. The boundary at the mouth of each bay or estuary was defined by the COLREGS demarcation line. COLREGS demarcation lines delineate ''those waters upon which mariners shall comply with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) and those waters upon which mariners shall comply with the Inland Navigation Rules'' (33 CFR 80.01). Waters inside of the 72 COLREGS lines are Inland Rules waters and waters outside of the 72 COLREGS lines are COLREGS waters. The draft biological report provides additional information for each specific area. For a copy of the report, see **ADDRESSES**, our Web site at *http://swr.nmfs.noaa.gov*, or the Federal eRulemaking Web site at *http://www.regulations.gov*. For additional discussion of the special management considerations or protection that may be needed for the PCEs, please see also the description of ''Special management considerations or protection'' below.

Coastal Marine Waters

Subadult and adult green sturgeon spend most of their time in coastal marine and estuarine waters. The best available data indicate coastal marine waters are important for seasonal migrations from southern California to Alaska to reach distant foraging and aggregation areas. Green sturgeon occur primarily within the 110 m depth bathymetry (Erickson and Hightower, 2007). Green sturgeon tagged in the Rogue River and tracked in marine waters typically occupied the water column at 40–70 m depth, but made rapid vertical ascents to or near the surface, for reasons yet unknown (Erickson and Hightower, 2007). Green sturgeon use of waters < 110 m depth was confirmed by coastal Oregon and Washington bottom-trawl fisheries records indicating that most reported locations of green sturgeon occurred inside of the 110-m depth contour from 1993–2000, despite the fact that most of the fishing effort occurred in water deeper than 110 m (Erickson and Hightower, 2007).

Based on tagging studies of both Southern and Northern DPS fish, green sturgeon spend a large part of their time in coastal marine waters migrating between coastal bays and estuaries, including sustained long-distance migrations of up to 100 km per day (S. Lindley and M. Moser, NMFS, pers. comm. cited in BRT, 2005). These seasonal long-distance migrations are most likely driven by food resources. Some tagged individuals were observed swimming at slower speeds and spending several days within certain areas, suggesting that the individuals were feeding (S. Lindley and M. Moser, NMFS, 2008, pers. comm.).

Within the geographical area occupied (from the California/Mexico border to the Bering Sea, Alaska), the CHRT divided the coastal marine waters into 12 specific areas between estuaries or bays confirmed to be occupied by the Southern DPS. The presence of green sturgeon and Southern DPS fish within each area was based on data from tagging and tracking studies, records of fisheries captures, and NOAA Observer Program records. Tagged Southern DPS subadults and adults have been detected in coastal marine waters from Monterey Bay, CA, to Graves Harbor, AK, including the Strait of Juan de Fuca (Lindley *et al.*, 2008). Green sturgeon bycatch data from NOAA's West Coast Groundfish Observer Program (WCGOP) support the telemetry results, showing green sturgeon occur from Monterey Bay, CA, to Cape Flattery, WA, with the greatest catch per unit effort in coastal waters from Monterey Bay to Humboldt Bay, CA (WCGOP, 2008, unpublished data). Because green sturgeon were only observed in the bottom trawl fishery, there was no data on green sturgeon bycatch off southeast Alaska, where bottom trawl fishing is prohibited. Green sturgeon have, however, been captured in bottom trawl fisheries along the coast off British Columbia. Although critical habitat cannot be designated within Canadian waters, it is important to note that several tagged Southern DPS green sturgeon have been detected off Brooks Peninsula on the northern tip of Vancouver Island, BC (Lindley *et al.*, 2008.). Patterns of telemetry data suggest that Southern DPS fish use oversummering grounds in coastal bays and estuaries along northern California, Oregon, and Washington and overwintering grounds between Vancouver Island, BC, and southeast Alaska (Lindley *et al.*, 2008).

Based on the tagging data and the information described above regarding green sturgeon use of coastal bays and estuaries in California, Oregon, and Washington, the CHRT identified the coastal marine waters from Monterey Bay, CA, to Vancouver Island, BC, as the primary migratory/connectivity corridor for subadult and adult Southern DPS green sturgeon to migrate to and from oversummering habitats and overwintering habitats. Coastal marine waters off southeast Alaska were not considered part of the primary migratory/connectivity corridor for green sturgeon, but were recognized as an important area at the northern extent of the overwintering range, based on the detection of two tagged Southern DPS fish off Graves Harbor, AK, (S. Lindley, NMFS, and J. Israel, UC Davis, 2007, pers. comm.) and green sturgeon bycatch data along the northern coast of British Columbia (Lindley *et al.*, 2008). For areas northwest of southeast Alaska and south of Monterey Bay, CA, data on green sturgeon occurrence include the 2006 capture of two green sturgeon of unknown DPS in bottom trawl groundfish fisheries off Kodiak Island, AK, and in the Bering Sea off Unimak Island, AK (J. Ferdinand and D. Stevenson, NMFS, 2006, pers. comm.). In coastal marine waters south of Monterey Bay, a few green sturgeon of unknown DPS have been captured off Huntington Beach and Newport (Roedel, 1941), Point Vicente (Norris, 1957), Santa Barbara, and San Pedro (R. Rasmussen, NMFS, 2006, pers. comm.). More detailed information on the specific areas within coastal marine waters can be found in the draft biological report, available at our Web site at *http://swr.nmfs.noaa.gov*, at the Federal eRulemaking Web site at *http://www.regulations.gov*, or upon request (see **ADDRESSES**). For additional discussion of the special management considerations or protection that may be needed for the PCEs, please see also the description of ''Special management considerations or protection'' below.

Special Management Considerations or Protection

Joint NMFS and USFWS regulations at 50 CFR 424.02(j) define ''special management considerations or protection'' to mean ''any methods or

procedures useful in protecting physical and biological features of the environment for the conservation of listed species.'' Based on discussions with the CHRT and consideration of the draft economic report, a number of activities were identified that may threaten the PCEs such that special management considerations or protection may be required. Major categories of habitat-related activities include: (1) Dams; (2) water diversions; (3) dredging and disposal of dredged material; (4) in-water construction or alterations, including channel modifications/diking, sand and gravel mining, gravel augmentation, road building and maintenance, forestry, grazing, agriculture, urbanization, and other activities; (5) National Pollutant Discharge Elimination System (NPDES) permit activities and activities generating non-point source pollution; (6) power plants; (7) commercial shipping; (8) aquaculture; (9) desalination plants; (10) proposed alternative energy projects; (11) liquefied natural gas (LNG) projects; (12) bottom trawling; and (13) habitat restoration. These activities may have an effect on one or more PCE(s) via their alteration of one or more of the following: Stream hydrology, water level and flow, water temperature, dissolved oxygen, erosion and sediment input/transport, physical habitat structure, vegetation, soils, nutrients and chemicals, fish passage, and stream/estuarine/marine benthic biota and prey resources. The CHRT identified the activities occurring within each specific area that may necessitate special management considerations or protection for the PCEs and these are described briefly in the following paragraphs. These activities are documented more fully in the draft biological report.

Table 1 lists the specific areas and the river miles or area (square miles) covered, the PCEs present, and the activities that may affect the PCEs for each specific area and necessitate the need for special management considerations or protection. Several activities may affect the PCEs within the freshwater rivers, bypasses, and the Delta. Within the rivers, dams and diversions pose threats to habitat features essential for the Southern DPS by obstructing migration, alterating water flows and temperature, and modifying substrate composition within the rivers. Pollution from agricultural runoff and water returns, as well as from other point and non-point sources, adversely affects water quality within the rivers, bypasses and the Delta. Water management practices in the bypasses may pose a threat to Southern DPS fish residing within or migrating through the bypasses. For example, low water levels may obstruct passage through the bypasses, resulting in stranded fish. Within the Delta, activities such as dredging, pile driving, water diversion, and the discharge of pollutants from point and non-point sources can adversely affect water quality as well as alter the composition and distribution of bottom substrates within the Delta.

Activities were also identified that may threaten the PCEs in coastal bays and estuaries and may necessitate the need for special management considerations or protection (Table 1). The application of pesticides may adversely affect prey resources and water quality within the bays and estuaries. In Willapa Bay and Grays Harbor, WA, the use of carbaryl in association with aquaculture operations reduces the abundance and availability of burrowing ghost shrimp, an important prey species for green sturgeon (Moser and Lindley, 2007; Dumbauld *et al.*, 2008). In the San Francisco, San Pablo, and Suisun bays, several pesticides have been detected at levels exceeding national benchmarks for the protection of aquatic life (Domagalski *et al.*, 2000). These pesticides pose a water quality issue and may affect the abundance and health of prey items as well as the growth and reproductive health of Southern DPS green sturgeon through bioaccumulation. Other activities of concern include those that may disturb bottom substrates, adversely affect prey resources, or degrade water quality through resuspension of contaminated sediments (*e.g.*, dredging operations, in-water construction).

In addition, several activities were identified that may affect the PCEs within coastal marine areas such that the PCEs would require special management consideration or protection (Table 1). The fact that green sturgeon were only captured in the bottom trawl fishery (based on the WCGOP bycatch data) provides evidence that green sturgeon are associated with the benthos and thus exposed to activities that disturb the bottom. Of particular concern are activities that affect prey resources. Prey resources likely include species similar to those fed on by green sturgeon in bays and estuaries (*e.g.*, burrowing ghost shrimp, mud shrimp, crangonid shrimp, amphipods, isopods, Dungeness crab), and these prey resources are known to occur within the marine specific areas. Activities that can affect these prey resources include: Commercial shipping and activities generating point source pollution (subject to National Pollutant Discharge Elimination System requirements) and non-point source pollution that can discharge contaminants and result in bioaccumulation of contaminants in green sturgeon; disposal of dredged materials that can bury prey resources; and bottom trawl fisheries that can disturb the bottom (but may result in beneficial or adverse effects on prey resources for green sturgeon). In addition, petroleum spills from commercial shipping activities and proposed tidal and wave energy projects may affect water quality or hinder the migration of green sturgeon along the coast and may necessitate special management of the PCEs.

Table 1. Summary of occupied specific areas within freshwater rivers, the bypasses, the Sacramento-San Joaquin Delta, coastal bays and estuaries, and coastal marine areas (within 110 m depth). The river miles or surface area covered, the PCEs present, and activities that may affect the PCEs and necessitate the need for special management considerations or protection within each area are listed. PCEs: Wd = depth, Fd = food, Fl = water flow, P = passage, S = substrates, Sq = sediment quality, Wq = water quality. Activities: AG = agriculture, AQ = aquaculture, BOT = bottom trawl fishing, CON = in-water construction or alterations, DAM = dams, DESAL = desalination plants, DIV = water diversions, DR = dredging and deposition of dredged material, EP = tidal/wave energy projects, LNG = LNG projects, POLL = point and non-point source pollution, PP = power plants, REST = restoration, SHIP = commercial shipping.

Specific area	River miles	PCEs present	Activities
Freshwater rivers			
Upper Sacramento River, CA	58.9	Wd, Fd, Fl, P, S, Sq, Wq	CON, DAM, DIV, POLL.
Lower Sacramento River, CA	182.4	Wd, Fd, Fl, P, S, Sq, Wq	AG, CON, DAM, DIV, DR, POLL.
Lower Feather River, CA	72.7	Wd, Fl, P, Wq	AG, CON, DAM, DIV, POLL.

Specific area	River miles	PCEs present	Activities
Lower Yuba River, CA	11.5	Wd, Fl, P, Wq	AG, DAM, DIV, POLL.

Specific area	Area (sq miles)	PCEs present	Activities
Bypasses and the Delta			
Yolo Bypass, CA	112.3	Fd, P, Sq, Wq	AG.
Sutter Bypass, CA	23.5	Fd, P, Sq, Wq	AG.
Sacramento-San Joaquin Delta, CA	438.9	Wd, Fd, Fl, P, S, Sq, Wq	CON, DIV, DR, POLL, PP, REST.
Coastal Bays and Estuaries			
Elkhorn Slough, CA	1.0	Fd, Sq, P, Wq	DR, PP.
Suisun Bay, CA	50.8	Wd, Fd, Fl, P, Sq, Wq	CON, DR, REST.
San Pablo Bay, CA	127.7	Wd, Fd, P, Sq, Wq	CON, DR, POLL, PP, REST.
San Francisco Bay, CA	269.9	Wd, Fd, P, Sq, Wq	CON, DR, EP, POLL, PP, REST.
Tomales Bay, CA	11.5	Fd, P, Sq, Wq	DIV, POLL, REST.
Noyo Harbor, CA	<0.1	Fd, P, Sq, Wq	DR, POLL.
Eel R. Estuary, CA	8.5	Fd, P, Sq, Wq	CON, POLL.
Humboldt Bay, CA	26.6	Fd, P, Sq, Wq	AQ, POLL.
Klamath/Trinity R. Estuary, CA	2.5	Fd, P, Sq, Wq	CON.
Rogue R. Estuary, OR	0.6	Fd, P, Sq, Wq	CON, POLL.
Coos Bay, OR	17.7	Fd, P, Sq, Wq	CON, LNG, POLL.
Winchester Bay, OR	10.8	Fd, P, Sq, Wq	CON, POLL.
Siuslaw R. Estuary, OR	0.4	Fd, P, Sq, Wq	CON, POLL.
Alsea R. Estuary, OR	0.8	Fd, P, Sq, Wq	CON, DIV, POLL.
Yaquina Bay, OR	6.3	Fd, P, Sq, Wq	POLL.
Tillamook Bay, OR	14.2	Fd, P, Sq, Wq	CON, POLL.
Columbia R. Estuary, OR and WA	236.9	Fd, P, Sq, Wq	CON, DAM, DR, LNG, POLL.
Willapa Bay, WA	134.3	Fd, P, Sq, Wq	AQ, CON, EP, POLL.
Grays Harbor, WA	91.8	Fd, P, Sq, Wq	AQ, POLL, SHIP.
Puget Sound, WA	1,017.8	Fd, P, Sq, Wq	CON, DR, EP, POLL, SHIP.
Coastal Marine Waters within 110 meters depth			
CA/Mexico Border to Monterey Bay, CA	2,522.8	Fd, P, Wq	BOT, CON, DESAL, DR, EP, LNG, POLL, PP.
Monterey Bay, CA, to San Francisco Bay, CA.	1,495.9	Fd, P, Wq	BOT, DESAL, POLL, PP.
San Francisco Bay, CA, to Humboldt Bay, CA.	2,066.7	Fd, P, Wq	BOT, EP, POLL.
Humboldt Bay, CA, to Coos Bay, OR	1,911.6	Fd, P, Wq	BOT, DR, EP, POLL.
Coos Bay, OR, to Winchester Bay, OR	186.5	Fd, P, Wq	BOT, EP.
Winchester Bay, OR, to Columbia R. Estuary.	2,686.3	Fd, P, Wq	BOT, EP, POLL.
Columbia R. Estuary to Willapa Bay, WA	477.1	Fd, P, Wq	BOT.
Willapa Bay, WA, to Grays Harbor, WA	403.0	Fd, P, Wq	BOT.
Grays Harbor, WA, to WA/Canada Border.	1,900.9	Fd, P, Wq	BOT, EP, POLL.
Strait of Juan De Fuca, WA	798.8	Fd, P, Wq	BOT, DR, POLL.
Canada/AK Border to Yakutat Bay, AK	19,567.9	Fd, P, Wq	EP, POLL, SHIP.
Coastal Alaskan Waters Northwest of Yakutat Bay, AK, including the Bering Sea to the Bering Strait.	374,826.4	Fd, P, Wq	BOT, EP, LNG, SHIP.

Unoccupied Areas

Section 3(5)(A)(ii) of the ESA authorizes the designation of ''specific areas outside the geographical area occupied at the time [the species] is listed'' if these areas are essential for the conservation of the species. Regulations at 50 CFR 424.12(e) emphasize that the agency ''shall designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species.'' The CHRT considered that a critical habitat designation limited to presently occupied areas may not be sufficient for conservation, because such a designation would not address one of the major threats to the population identified by the Status Review Team—the concentration of spawning into one spawning river (*i.e.*, the Sacramento River), and, as a consequence, the risk of extirpation due to a catastrophic event.

The CHRT identified seven unoccupied areas in the Central Valley, California that may provide additional spawning habitat for the Southern DPS of green sturgeon and considered whether these areas are essential for the conservation of the Southern DPS. These seven areas include areas behind dams that are currently inaccessible to green sturgeon and areas below dams that are not currently occupied by green sturgeon. The areas include: (1) Reaches upstream of Oroville Dam on the Feather River; (2) reaches upstream of Daguerre Dam on the Yuba River; (3) areas on the Pit River upstream of Keswick and Shasta dams; (4) areas on the McCloud River upstream of Keswick

and Shasta dams; (5) areas on the upper Sacramento River upstream of Keswick and Shasta dams; (6) reaches on the American River; and (7) reaches on the San Joaquin River. Of these seven areas, the CHRT identified reaches upstream of Daguerre Dam on the Yuba River as the most important for conserving the species because: (1) The current habitat conditions are likely to support spawning; (2) adult Southern DPS fish currently occupy habitat just below the Daguerre Dam; (3) although the Yuba River is part of the Sacramento River drainage basin, it is separated spatially from the current, single spawning population on the upper Sacramento River such that if a catastrophic mortality event were to occur in the upper Sacramento River, a Yuba River population could help safeguard the species from a mortality event that would likely have significant adverse species-level effects; and (4) there is a greater potential for removal of the Daguerre Dam, or restoration of fish passage at the dam, in the near future than for any of the other dams located within the unoccupied areas identified by the CHRT. The CHRT also considered reaches on the San Joaquin River, from the South Delta to the Goodwin Dam on the Stanislaus River, as important for conserving the Southern DPS for some of the same reasons mentioned above, especially because the San Joaquin and Stanislaus rivers are part of an entirely different drainage basin than the current single spawning area in the upper Sacramento River. However, the CHRT was less certain regarding the prospects for reestablishing a spawning population in this area, because current conditions on the mainstem San Joaquin River are poor and it is uncertain whether conditions favorable for green sturgeon presence and spawning could be restored in this area in the near future.

The CHRT was unable to determine that these seven unoccupied areas which may be essential, actually are essential to the conservation of the Southern DPS at this time. Thus, these seven unoccupied areas are not proposed for designation as critical habitat. The CHRT believed it likely that at least one additional spawning area is needed to support the conservation of the Southern DPS, but because of insufficient information regarding: (1) The historical use of the currently unoccupied areas by green sturgeon; and (2) the likelihood that the habitats within these unoccupied areas will be restored to conditions that would support green sturgeon presence and spawning (*e.g.,* restoring fish passage and sufficient water flows and water temperatures) they were unable to determine which of these unoccupied areas would be essential for conserving the species. The development of a recovery plan could help address the latter question by establishing recovery actions (*e.g.,* removal of barriers on the Yuba River) and recovery criteria (*e.g.,* establishing at least two additional spawning populations for the Southern DPS in rivers south of the Eel River) in order to achieve downlisting and eventual delisting of the Southern DPS. NMFS encourages actions that would protect, conserve, and/or enhance habitat conditions for the Southern DPS (*e.g.,* habitat restoration, removal of dams, and establishment of fish passage) within these areas. We request additional information from the public regarding these presently unoccupied areas and their historical, current, and potential use by green sturgeon. Additional information would inform our consideration of these areas for the final designation as well as future recovery planning for the Southern DPS.

Military Lands

Under the Sikes Act of 1997 (Sikes Act) (16 U.S.C. 670a), ''each military installation that includes land and water suitable for the conservation and management of natural resources'' is required to develop and implement an integrated natural resources management plan (INRMP). An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found there. Each INRMP includes: an assessment of the ecological needs on the military installation, including the need to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. Each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management, fish and wildlife habitat enhancement or modification, wetland protection, enhancement, and restoration where necessary to support fish and wildlife and enforcement of applicable natural resource laws.

The ESA was amended by the National Defense Authorization Act for Fiscal Year 2004 (Pub. L.108–136) to address the designation of military lands as critical habitat. ESA section 4(a)(3)(B)(i) states: ''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.''

We contacted the Department of Defense (DOD) and requested information on all INRMPs for DOD facilities that overlap with the specific areas considered for designation as critical habitat and that might provide benefits to green sturgeon. The INRMPs for one facility in California (Camp San Luis Obispo) and for nine facilities in Puget Sound, WA, were provided to us. Of these, the following six facilities with INRMPs were determined to overlap with the specific areas under consideration for critical habitat designation (all located in Puget Sound, WA): (1) Bremerton Naval Hospital; (2) Naval Air Station, Everett; (3) Naval Magazine Indian Island; (4) Naval Fuel Depot, Manchester; (5) Naval Undersea Warfare Center, Keyport; and (6) Naval Air Station, Whidbey Island. We reviewed the INRMPs for measures that would benefit green sturgeon. The INRMPs for four of the facilities (Bremerton Naval Hospital, NAS Everett, Naval Fuel Depot (Manchester), and Naval Magazine (Indian Island)) contain measures for listed salmon and bull trout that provide benefits for green sturgeon. The INRMPs for the two remaining facilities (NAS Whidbey Island and NUWC Keyport) do not contain specific requirements for listed salmon or bull trout, but also include measures that benefit fish species, including green sturgeon. Examples of the types of benefits include measures to control erosion, protect riparian zones and wetlands, minimize stormwater and construction impacts, and reduce contaminants. Based on these benefits provided for green sturgeon under the INRMPs, we determined that the areas within these six DOD facilities in Puget Sound, WA, were not eligible for designation as critical habitat.

Application of ESA Section 4(b)(2)

Section 4(b)(2) of the ESA requires the Secretary to consider the economic, national security, and any other relevant impacts of designating any particular area as critical habitat. Any particular area may be excluded from critical habitat if the Secretary determines that the benefits of excluding the area outweigh the benefits of designating the area. The Secretary may not exclude a particular area from designation if exclusion will result in the extinction of the species. Because the authority to

exclude is discretionary, exclusion is not required for any areas. In this proposed designation, the Secretary has applied his statutory discretion to exclude 13 occupied areas from critical habitat where the benefits of exclusion outweigh the benefits of designation.

The first step in conducting the ESA section 4(b)(2) analysis is to identify the ''particular areas'' to be analyzed. Where we considered economic impacts and weighed the economic benefits of exclusion against the conservation benefits of designation, we used the same biologically-based ''specific areas'' we identified in the previous sections pursuant to section 3(5)(A) of the ESA (*e.g.,* the upper Sacramento River, the lower Sacramento River, the Delta, etc.). Delineating the ''particular areas'' as the same units as the ''specific areas'' allowed us to most effectively consider the conservation value of the different areas when balancing conservation benefits of designation against economic benefits of exclusion. At this time, we have not identified any national security or other relevant impacts of designation; therefore, we did not delineate any particular areas on the basis of these impacts.

The next step in the ESA section 4(b)(2) analysis involves identification of the impacts of designation: the benefits of designation and the benefits of exclusion, and then a more in-depth discussion of each. We then weigh the benefits of designation against the benefits of exclusion, identify areas eligible for exclusion where the benefits of exclusion outweigh the benefits of designation, and determine which areas are appropriate to propose for exclusion. These steps and the resulting list of areas excluded from designation are described in detail in the sections below.

Impacts of Designation

The primary impact of a critical habitat designation stems from the requirement under section 7(a)(2) of the ESA that Federal agencies insure their actions are not likely to result in the destruction or adverse modification of critical habitat. Determining this impact is complicated by the fact that section 7(a)(2) contains the overlapping requirement that Federal agencies must also ensure their actions are not likely to jeopardize the species' continued existence. One incremental impact of designation is the extent to which Federal agencies modify their actions to insure their actions are not likely to adversely modify the critical habitat of the species, beyond any modifications they would make because of the listing and the jeopardy requirement. When a modification would be required due to impacts to both the species and critical habitat, the impact of the designation may be co-extensive with the ESA listing of the species. Additional impacts of designation include state and local protections that may be triggered as a result of the designation and the benefits from educating the public about the importance of each area for species conservation. The benefits of designation were evaluated by considering the conservation value of each occupied specific area to the Southern DPS. In the ''Benefits of Designation'' section below, we discuss how the conservation values of the specific areas were assessed.

In determining the impacts of designation, we predicted the incremental change in Federal agency actions as a result of the critical habitat designation and the adverse modification prohibition, beyond the changes predicted to occur as a result of listing and the jeopardy provision. In recent critical habitat designations for salmon and steelhead and for Southern Resident killer whales, the ''co-extensive'' impact of designation was considered in accordance with a Tenth Circuit Court decision (*New Mexico Cattle Growers Association* v. *U.S. Fish and Wildlife Service,* 248 F.3d 1277 (10th Cir. 2001)) (*NMCA*). The ''co-extensive'' impact of designation considers the predicted change in the Federal agency action resulting from the critical habitat designation and the adverse modification prohibition (whereby the action's effect on the PCEs and the value of the habitat is analyzed), even if the same change would result from application of the listing and the jeopardy provision (whereby the action's effect on the species itself and individual members of the species is analyzed). Shortly after the *NMCA* decision, however, the Court of Appeals for the Fifth Circuit (*Sierra Club* v. *U.S. Fish and Wildlife Service,* 243 F.3d 434 (5th Cir. 2001) (*Sierra Club*)) and the Court of Appeals for the Ninth Circuit (*Gifford Pinchot Task Force* v. *FWS,* 378 F.3d 1059 (9th Cir. 2004)) (*Gifford Pinchot*) invalidated our regulatory definition of ''adverse modification'' of critical habitat. Following that decision, a District Court in Washington, D.C. issued a decision involving the USFWS's critical habitat designation for the piping plover (*Cape Hatteras Access Preservation Alliance* v. *Norton,* 344 F. Supp. 2d 1080 (D.D.C. 2004)) (*Cape Hatteras*). In that decision, the Court reasoned that the impact of a regulation should be based on a comparison of the world with and without the action, and that the effects of listing and the jeopardy provision should not be considered as part of the impacts of a designation in the ESA 4(b)(2) analysis for a critical habitat designation.

Consistent with the *Cape Hatteras* decision, we estimated and analyzed the incremental impacts of designation, beyond the impacts that would result from the listing and jeopardy provision. Our methods for estimating the impacts of designation for economic impacts are summarized in the section below titled ''Determining the Benefits of Excluding Particular Areas.'' Because section 4(b)(2) requires a balancing of competing considerations, we have concluded that we must uniformly consider impacts and benefits. Though we do not propose exclusions based on national security impacts or other relevant impacts, we would also focus on incremental impacts in such an analysis. We recognize that excluding an area from designation will not likely avoid all of the impacts because the jeopardy provision under section 7 still applies. Similarly, much of the section 7 benefit would still apply because the jeopardy provision still applies.

A draft economic report describes in more detail the types of activities that may be affected by the designation, the potential range of changes we might seek in those actions, and the estimated economic impacts that might result from such changes. A draft biological report describes in detail the CHRT's evaluation of the conservation value of each specific area and reports the final conservation value ratings. The draft ESA 4(b)(2) report describes the weighing of the benefits of designation against the benefits of exclusion for each area. We solicit comments on all of these reports, available on the NMFS Southwest Region Web site at *http://swr.nmfs.noaa.gov/,* on the Federal E-Rulemaking Web site at *http://www.regulations.gov,* or upon request (see **ADDRESSES**).

Benefits of Designation

The primary benefit of designation is the protection afforded under section 7 of the ESA, requiring all Federal agencies to insure their actions are not likely to destroy or adversely modify designated critical habitat. This is in addition to the requirement that all Federal agencies ensure their actions are not likely to jeopardize the continued existence of the species. In addition, the designation may provide education and outreach benefits by informing the public about areas and features important to species conservation. By delineating areas of high conservation value, the designation may help focus

and contribute to conservation efforts for green sturgeon and their habitats.

These benefits are not directly comparable to the costs of designation for purposes of conducting the section 4(b)(2) analysis described below. Ideally, the benefits should be monetized. With sufficient information, it may be possible to monetize the benefits of a critical habitat designation by first quantifying the benefits expected from an ESA section 7 consultation and translating that into dollars. We are not aware, however, of any available data that would support such an analysis for green sturgeon (*e.g.,* estimates of the monetary value associated with conserving the PCEs within areas designated as critical habitat, or with education and outreach benefits). As an alternative approach, we used the CHRT's conservation value ratings to represent the qualitative conservation benefits of designation for each of the particular areas identified as critical habitat for the Southern DPS (see the section titled Methods for Assessment of Specific Areas). These conservation value ratings represent the estimated incremental benefit of designating critical habitat for the species. In evaluating the conservation value of each specific area, the CHRT focused on the habitat features present in, habitat functions provided by each area, and the importance of protecting the habitat for the overall conservation of the species. The draft biological report sets forth detailed information on the qualitative conservation benefits of the specific areas proposed for designation, which is summarized briefly in the following paragraphs.

Methods for Assessment of Specific Areas

After identifying the PCEs, the geographical area occupied, and the specific areas, the CHRT scored and rated the relative conservation value of each occupied specific area. The conservation value ratings provided an assessment of the relative importance of each specific area to the conservation of the Southern DPS. Areas rated as ''High'' were deemed to have a high likelihood of promoting the conservation of the Southern DPS. Areas rated as ''Medium'' or ''Low'' were deemed to have a moderate or low likelihood of promoting the conservation of the Southern DPS, respectively. The CHRT considered several factors in assigning the conservation value ratings, including the PCEs present, the condition of the PCEs, the life stages and habitat functions supported, and the historical, present, and potential future use of the area by green sturgeon. These factors were scored by the CHRT and summed to generate a total score for each specific area, which was considered in the CHRT's evaluation and assignment of the final conservation value ratings.

The CHRT also considered the importance of connectivity among habitats, recognizing that green sturgeon must migrate along the coast to access important oversummering and overwintering habitats in coastal bays and estuaries. Specific areas in coastal marine waters may provide low to medium value habitat for green sturgeon based on the PCEs present. However, such areas may contain high-value connectivity corridors for green sturgeon migrating out of the San Francisco Bay system to bays and estuaries in California, Oregon, Washington, and Canada, without which green sturgeon would not be able to access high-value habitats. The CHRT recognized that even within an area of Low to Medium conservation value, the presence of a migratory/connectivity corridor that provides passage to high value areas would warrant increasing the overall conservation value of the area to a High. To account for this, a separate conservation value rating was assigned to areas containing a migratory/connectivity corridor, equal to the rating of the highest-rated area for which it served as a migratory/connectivity corridor.

Members of the CHRT were then asked to re-examine the conservation value ratings for the specific areas where the presence of Southern DPS green sturgeon is likely (based on the presence of Northern DPS fish or green sturgeon of unknown origin), but not confirmed. These areas include the coastal marine waters within 110 m depth from the California/Mexico border to Monterey Bay, CA, and from Yakutat Bay, AK, to the Bering Strait (including the Bering Sea), as well as the following coastal bays and estuaries: Elkhorn Slough, CA; Tomales Bay, CA; Noyo Harbor, CA; Eel River estuary, CA; Klamath/Trinity River estuary, CA; Rogue River estuary, OR; Siuslaw River estuary, OR; Alsea River estuary, OR; Yaquina Bay, OR; and Tillamook Bay, OR. While these areas are considered occupied for the reasons provided above, the CHRT recognized that a lack of documented evidence for Southern DPS presence within these areas (perhaps because of the lack of monitoring or sampling effort within these areas) is indicative of a high degree of uncertainty as to the extent to which Southern DPS fish use these areas. The low occurrence of green sturgeon within these areas is also indicated by few observations of the species in these areas, both historically and recently. The CHRT scored all of these areas, except for Tomales Bay, CA, much lower than other areas, reflecting the CHRT's assessment that these areas contribute relatively little to the conservation of the species. For the bays and estuaries, this was based on the limited area and depth to support green sturgeon migration and feeding, as well as the low use of these areas by green sturgeon. Tomales Bay, CA, was given a higher score and rated as ''Medium,'' because it is a large, deep embayment providing good habitat for feeding by green sturgeon and is likely the first major bay to be encountered by subadults making their first migration into marine waters. As described above (see ''Bays and Estuaries''), green sturgeon are more commonly observed in the Eel River estuary, Klamath/Trinity River estuary, and Rogue River estuary, but are believed to primarily belong to the Northern DPS. Again, there is great uncertainty as to the extent of use of these estuaries by Southern DPS fish. For the coastal marine waters, the two areas are outside of the migratory/connectivity corridor identified by the CHRT and also lack confirmed Southern DPS presence. Although the CHRT did not include the area in southeast Alaska up to Yakutat Bay, AK, as part of the primary migratory corridor, this area was rated as ''Medium'' because it represents the northern extent of the area containing important overwintering grounds for Southern DPS green sturgeon (Lindley *et al.,* 2008; S. Lindley and M. Moser, NMFS, 2008, unpublished data). Based on this information, the CHRT agreed that the conservation value ratings should be reduced by one rating for these specific areas where the presence of the Southern DPS is likely, but not confirmed. This necessitated the creation of a fourth conservation value rating (''Ultra-low''). Those specific areas that initially received a ''Low'' rating were assigned a final conservation value rating of ''Ultra-low,'' whereas those areas that initially received a ''Medium'' rating were assigned a final conservation value rating of ''Low.'' None of the specific areas where the presence of Southern DPS fish was likely but not confirmed had received a rating of ''High.''

The final conservation ratings and the justifications for each specific area are summarized in the draft biological report (available via our Web site at *http://swr.nmfs.noaa.gov,* via the Federal eRulemaking Web site at *http://www.regulations.gov,* or upon

request—see **ADDRESSES**). The CHRT recognized that even within a rating category, variation exists. For example, freshwater riverine areas rated as ''High'' may be of greater conservation value to the species than coastal marine areas with the same rating. This variation was captured in the comments provided by the CHRT members for each specific area. The draft biological report describes in detail the evaluation process used by the CHRT to assess the specific areas, as well as the biological information supporting the CHRT's assessment.

Determining the Benefits of Excluding Particular Areas

To determine the benefits of excluding particular areas from designation, we considered the Federal activities that may be subject to an ESA section 7 consultation and the range of potential changes that may be required for each of these activities under the adverse modification provision, regardless of whether those changes may also be required under the jeopardy provision. These consultation and project modification costs represent the economic benefits of excluding each particular area (that is, the economic costs that would be avoided if an area were excluded from the designation).

The CHRT identified and examined the types of Federal activities that occur within each of the specific areas and that may affect Southern DPS green sturgeon and the critical habitat (also see the section on ''Special Management Considerations or Protection''). Because the Southern DPS was recently listed under the ESA in 2006, we lack an extensive consultation history. Thus, the CHRT relied on NMFS' experience in conducting ESA section 7 consultations and their best professional judgment to identify the types of Federal activities that might trigger a section 7 consultation. These include: (1) The installation and operation of dams; (2) the installation and operation of water diversions; (3) in-water construction or alterations; (4) dredging operations and disposal of dredge material; (5) NPDES permit activities and activities generating non-point source pollution, such as agricultural runoff; (6) power plant operations; (7) operations of liquefied natural gas (LNG) projects; (8) discharges from desalination plants; (9) commercial shipping (*e.g.,* discharges, oil spills); (10) aquaculture; (11) tidal or wave energy projects; (12) bottom trawl fisheries; and (13) habitat restoration. While we relied on the best, currently available information to predict the number of these types of activities within the areas considered for designation as critical habitat, we recognize that some of these activities, in particular tidal or wave energy projects, are relatively new and anticipated to increase in number in the future. Relevant information received during the comment period on the number and nature of such projects expected to occur within the proposed critical habitat will inform any final designation of critical habitat. In addition, relevant information concerning the potential impacts to activities, particularly LNG and hydropower activities, will also inform any final designation, including our determinations of whether to exclude any particular area from the designation.

We then considered the range of modifications we might seek in these activities to avoid destroying or adversely modifying critical habitat of the Southern DPS. Because of the limited consultation history, we relied on information from consultations conducted for salmon and steelhead, comments received during green sturgeon public scoping workshops conducted for the development of protective regulations, and information from green sturgeon and section 7 biologists to determine the types of activities and potential range of changes. While we recognize that differences between the biology of Southern DPS green sturgeon and listed salmonids exist, there is also overlap in the types of habitat they use, their life history strategies and their behavior. Given the limited amount of direct information regarding the types of modifications we might seek to avoid adverse modification of Southern DPS critical habitat, we relied on the best information available for analog species (*i.e.,* the listed salmonids) to guide our decision making. Additional information on differences in the habitat needs, life history strategies, and behavior of these species may allow us to refine our analysis. For each potential impact, we tried to provide information on whether the impact is more closely associated with adverse modification or with jeopardy, to distinguish the impacts of applying the jeopardy provision versus the adverse modification provision.

We were able to monetize estimates of the economic impacts resulting from a critical habitat designation; however, because of the limited consultation history for green sturgeon and uncertainty about specific management actions likely to be required under a consultation, there was a great degree of uncertainty in the cost estimates for some specific areas. Several factors were considered in developing the estimated economic impacts, including the level of economic activity within each area, the level of baseline protection afforded to green sturgeon by existing regulations for each economic activity within each area, and the estimated economic impact (in dollars) associated with each activity type. The baseline included the protections afforded to green sturgeon by the listing and jeopardy provision, as well as protections provided for salmon and steelhead and their critical habitat including existing laws, regulations, and initiatives. Estimates of the economic costs were based on project modifications that might be required during consultation to avoid the destruction or adverse modification of critical habitat (see draft Economic Analysis Report for additional details). Thus, the estimated economic impacts represent the incremental impact of the designation. The draft economic analysis sets forth detailed information on the economic impacts of designating particular areas as critical habitat, as well as consultation costs anticipated as a result of this proposed designation.

Our determination of these incremental economic impacts was based on the best available information. We solicit comment on the incremental values assigned in the economic report and will consider any relevant information received, including relevant differences in the biology of listed salmonids and green sturgeon, in developing the economic analysis supporting any final designation.

Exclusions Based on Economic Impacts

A draft ESA 4(b)(2) report describes in detail our approach to weighing the benefit of designation against the economic benefit of exclusion. The results of our analysis contained in this report are summarized below.

The benefits associated with species conservation are not directly comparable to the economic benefit, benefit to national security, or other relevant benefit that would result if an area were excluded from designation. We had sufficient information to monetize the economic benefits of excluding an area, but were not able to monetize the conservation benefits of designating an area. Thus, for each area we compared the qualitative conservation value against the monetary economic impact estimate to determine if the cost estimate exceeded a threshold dollar amount. Areas where the economic benefit of exclusion outweighed the benefit of designation were considered for exclusion from designation as critical habitat.

We identified areas eligible for exclusion based on four decision rules: (1) All areas with a conservation value rating of ''High'' were not eligible for exclusion regardless of the level of economic impact, because of the threatened status of the Southern DPS of green sturgeon; (2) areas with a conservation value rating of ''Medium'' were eligible for exclusion if the estimated economic impact exceeded $100,000; (3) areas with a conservation value rating of ''Low'' were eligible for exclusion if the estimated economic impact exceeded $10,000; and (4) areas with a conservation value rating of ''Ultra-low'' were eligible for exclusion if the estimated economic impact exceeded $0 (see draft 4(b)(2) Report for additional details). These dollar thresholds do not represent an objective judgment that Medium-value areas are worth no more than $100,000, Low-value areas are worth no more than $10,000, or Ultra-Low value areas are worth $0. Under the ESA, we are to weigh dissimilar impacts given limited time and information. The statute emphasizes that the decision to exclude is discretionary. Thus, the economic impact level at which the economic benefits of exclusion outweigh the conservation benefits of designation is a matter of discretion and depends on the policy context. For critical habitat, the ESA directs us to consider exclusions to avoid high economic impacts, but also requires that the areas designated as critical habitat are sufficient to support the conservation of the species and to avoid extinction. In this policy context, we selected dollar thresholds representing the levels at which the economic impact associated with a specific area would outweigh the conservation benefits of designating that area. These dollar thresholds and decision rules provided a relatively simple process to identify, in a limited amount of time, specific areas warranting consideration for exclusion.

Based on this analysis, we identified 15 occupied areas as eligible for exclusion: (1) Elkhorn Slough, CA; (2) the lower Feather River, CA; (3) Tomales Bay, CA; (4) Noyo Harbor, CA; (5) Eel River estuary, CA; (6) Klamath/Trinity River estuary, CA; (7) Rogue River estuary, OR; (8) Coos Bay, OR; (9) Siuslaw River estuary, OR; (10) Alsea River estuary, OR; (11) Tillamook Bay, OR; (12) Puget Sound, WA; (13) coastal marine waters within 110 m depth from the CA-Mexico border to Monterey Bay, CA; (14) coastal marine waters within 110 m depth from the Alaska/Canada border to Yakutat Bay, AK; and (15) coastal marine waters within 110 m depth northwest of Yakutat Bay, AK, to the Bering Strait (including the Bering Sea).

We asked the CHRT whether excluding any of the areas eligible for exclusion would significantly impede conservation of the Southern DPS or result in extinction of the species. The CHRT considered these questions in the context of all of the areas eligible for exclusion, as well as the information they had developed in determining the conservation value ratings.

The CHRT determined, and we concur, that exclusion of the following 11 areas eligible for exclusion would not significantly impede conservation or result in extinction of the species: (1) Elkhorn Slough, CA; (2) Tomales Bay, CA; (3) Noyo Harbor, CA; (4) Eel River estuary, CA; (5) Klamath/Trinity River estuary, CA; (6) Rogue River estuary, OR; (7) Siuslaw River estuary, OR; (8) Alsea River estuary, OR; (9) Tillamook Bay, OR; (10) coastal marine waters within 110 m depth from the California/Mexico border to Monterey Bay, CA; and (11) coastal marine waters within 110 m depth northwest of Yakutat Bay, AK, to the Bering Strait (including the Bering Sea). The CHRT based their determination on the fact that each of these 11 areas was assigned a Low or Ultra-low conservation value and Southern DPS fish have not been documented to use these areas extensively. The CHRT discussed the fact that the bays and estuaries eligible for exclusion listed above may not be used often by the Southern DPS because: (1) They are relatively small systems compared to other bays and estuaries that are used extensively and consequently received higher conservation ratings; and (2) Southern DPS fish do not appear to use Northern DPS spawning systems extensively. The CHRT discussed the fact that few green sturgeon (of unknown DPS) have been observed in coastal marine waters within 110 m depth from the California/Mexico border to Monterey Bay, CA; and northwest of Yakutat Bay, AK, to the Bering Strait (including the Bering Sea). For these reasons, the CHRT concluded that excluding the bays, estuaries and coastal marine areas mentioned above from the designation would not significantly impede conservation of the Southern DPS nor result in extinction of the species. Thus, we propose to exclude these 11 areas from the critical habitat designation for the Southern DPS. We recognize that the lack of documented evidence for Southern DPS presence in these areas may be because these areas are not adequately monitored for green sturgeon. We would encourage directed surveys to be conducted in these areas.

The CHRT also reevaluated the four areas of medium conservation value that were eligible for exclusion (lower Feather River, CA; Coos Bay, OR; Puget Sound, WA; and coastal marine waters within 110 m depth from the Alaska/Canada border to Yakutat Bay, AK) to determine whether excluding them would significantly impede conservation of the Southern DPS or result in extinction of the species. The CHRT determined that exclusion of Puget Sound would not significantly impede conservation of the Southern DPS. Observations of green sturgeon in Puget Sound are much less common compared to the other estuaries in Washington. Although two confirmed Southern DPS fish were detected there in 2006, the extent to which Southern DPS green sturgeon use Puget Sound remains uncertain. Despite the fact that Puget Sound has a long history of commercial and recreational fishing and fishery-independent monitoring of other species that use habitats similar to those of green sturgeon, very few green sturgeon have been observed there. In addition, Puget Sound does not appear to be part of the coastal migratory corridor that Southern DPS fish use to reach overwintering grounds north of Vancouver Island (S. Lindley and M. Moser, NMFS, 2008, pers. comm.), thus corroborating the assertion that Southern DPS do not use Puget Sound extensively. The economic cost of designating this area was well above the $100 K threshold because of the large number of activities affecting sediment and water quality (*i.e.*, dredging, in-water construction, and point and non-point sources of pollution) that might require special management if critical habitat were to be designated. Thus, we propose to exclude Puget Sound as critical habitat for the Southern DPS, because the benefits of designation are outweighed by the benefits of exclusion, and because the exclusion of this area will not result in the extinction of the species.

The CHRT unanimously agreed that exclusion of the lower Feather River would significantly impede conservation of the Southern DPS. The CHRT identified the lower Feather River as an important area for the conservation of the Southern DPS, because it has been consistently occupied by the species and most likely contains spawning habitat for the Southern DPS, potentially providing a spawning river for the Southern DPS in addition to the Sacramento River. The CHRT had assigned the lower Feather River a Medium conservation value, but

noted that future improvements to habitat conditions (*e.g.*, improved passage, restoration of water flow) are both logistically and financially feasible and if they were carried out, would raise the conservation value to a High. We propose to designate the lower Feather River as critical habitat for the Southern DPS to protect the high conservation potential of this area and reduce extinction risk. We solicit additional data and comments from the public regarding designation of the Lower Feather River, particularly information regarding the economic costs associated with activities that may be affected by a critical habitat designation and on the conservation benefits to green sturgeon provided by this area.

The CHRT also determined that exclusion of Coos Bay would significantly impede the conservation of the species. The CHRT identified Coos Bay as an important area for the Southern DPS because it is the largest and deepest estuary along the Oregon coast presently occupied by green sturgeon, has a large mixing zone, provides a protected area for green sturgeon aggregation and feeding, and is an important ''stepping-stone'' estuary between San Francisco Bay and the lower Columbia River estuary. There is a great degree of uncertainty regarding the economic costs associated with a designation in this area. The estimated costs ranged from $19,000 to $16 million, spanning the threshold value over which an area was considered eligible for exclusion ($100,000 for areas with a Medium conservation value). This uncertainty was driven largely by the possible placement of one LNG terminal inside the bay, a limited understanding of how LNG projects would affect the PCEs, and uncertainty regarding how LNG activities might be altered to avoid adverse modification of green sturgeon critical habitat. Because there is great uncertainty regarding the LNG project at this time, we considered the lower economic impact estimate ($19,000) in developing this proposed rule. Based on this information, we propose to designate Coos Bay as critical habitat for the Southern DPS, because the conservation value of the area outweighs what we consider to be the more realistic economic cost of designation (*i.e.,* approximately $19,000). At this time, we propose that designating critical habitat in Coos Bay will provide conservation value to the species and reduce extinction risk. However, we acknowledge that $19,000 is likely a low estimate of the impact likely to occur as a result of this proposed critical habitat designation. During the comment period we seek from the public and will request from relevant Federal agencies additional data and information, in particular information regarding additional costs incurred by the LNG industry, to develop a more accurate assessment of the likely costs of this proposed designation in Coos Bay and other areas in the lower Columbia River estuary. We will use such information in our economic analysis and ESA 4(b)(2) weighing process such that a reconsideration of the proposed designation of Coos Bay and other areas along the lower Columbia River estuary may be warranted. Therefore, we solicit additional data and comments regarding designation of Coos Bay and other areas along the lower Columbia River estuary, particularly information regarding the economic costs associated with LNG projects that may occur as a result of a critical habitat designation.

The CHRT also looked closely at the possible exclusion of the coastal marine waters within 110 m depth from the Alaska/Canada border to Yakutat Bay, AK. Some CHRT members noted that the exclusion of this area from the designation might impede conservation of the Southern DPS, because this area may be an important component of the overwintering range for the species. Although only two tagged Southern DPS green sturgeon have been detected in this area, the fact that the detection system in Graves Harbor, AK, is not designed to detect green sturgeon and that the data have only been collected from 2005–2006 suggests that Southern DPS use of the area may be greater than indicated by the available data. Other CHRT members stated that the relatively low number of Southern DPS detections in the area, in combination with the uncertainty surrounding the activities occurring in southeast Alaska, suggests that excluding this area from the designation would not significantly impede conservation or result in the extinction of the species. At this time, we propose to exclude the coastal marine waters within 110 m depth from the Alaska/Canada border to Yakutat Bay, AK, from the designation because the economic impacts outweigh the conservation benefit of designation in this area. We solicit the public for more information regarding: (1) The presence of green sturgeon in coastal waters off southeast Alaska; (2) the spatial distribution of the PCEs in southeast Alaska; (3) activities occurring in the area that may affect the PCEs; (4) the types of changes that might be proposed for these activities to avoid impacts to the PCEs; and (5) estimated costs associated with making these changes.

In summary, we propose to exclude the following 13 specific areas from the critical habitat designation: (1) Elkhorn Slough, CA; (2) Tomales Bay, CA; (3) Noyo Harbor, CA; (4) Eel River estuary, CA; (5) Klamath/Trinity River estuary, CA; (6) Rogue River estuary, OR; (7) Siuslaw River estuary, OR; (8) Alsea River estuary, OR; (9) Tillamook Bay, OR; (10) Puget Sound, WA; (11) coastal marine waters within 110 m depth from the California/Mexico border to Monterey Bay, CA; (12) coastal marine waters within 110 m depth from the Alaska/Canada border to Yakutat Bay, AK; and (13) coastal marine waters within 110 m depth northwest of Yakutat Bay, AK, to the Bering Strait (including the Bering Sea). Based on the best scientific and commercial data available, we have determined that the exclusion of these 13 areas from the designation would not result in the extinction of the species.

Exclusions Based on Impacts on National Security

We have contacted the DOD regarding any DOD lands that may overlap with areas proposed for designation as critical habitat for the Southern DPS. At this time, we have not received information identifying impacts on national security that may result from the designation. However, we solicit comments from the public and from the DOD regarding any national security concerns for the areas proposed for designation. We are aware of DOD sites in the Strait of Juan de Fuca that have been excluded on the basis of national security impacts for Southern Resident killer whales and Puget Sound salmon, as well as DOD sites off the coasts of California and Washington that may be affected by a critical habitat designation. We request information specifically pertaining to whether the designation for such sites as critical habitat for the Southern DPS would result in national security impacts that would outweigh the benefits of designation.

Other Relevant Impacts

We did not propose exclusions based on other relevant impacts of designation, particularly impacts on Indian tribes.

For this proposed critical habitat designation for Southern DPS green sturgeon, we reviewed maps indicating that very few if any areas under consideration as critical habitat actually overlap with Indian lands. Nearshore coastal areas comprise the vast majority of these possible overlap areas, but it is unclear which if any Indian lands are

subject to consideration for possible exclusion. In particular, we lack information regarding where Indian land boundaries lie in relation to shoreline tidal boundaries used to identify the lateral extent in this proposed rule. Our preliminary assessment indicates that the following federally-recognized tribes (73 FR 18553, April 4, 2008) have lands that may be in close proximity to areas under consideration for designation as critical habitat for Southern DPS green sturgeon: the Hoh, Jamestown S'Klallam, Lower Elwha, Makah, Quileute, Quinault, and Shoalwater Bay tribes in Washington; the Confederated Tribes of Coos Lower Umpqua and Siuslaw Indians and the Coquille Tribe in Oregon; and the Cachil DeHe Band of Wintun Indians of the Colusa Indian Community, Wiyot Tribe, and Yurok Tribe in California.

We seek comments regarding these areas and will continue to investigate whether any Indian lands overlap, and may warrant exclusion from, critical habitat for Southern DPS green sturgeon. Indian lands are those defined in the Secretarial Order ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997), including: (1) Lands held in trust by the United States for the benefit of any Indian tribe; (2) land held in trust by the United States for any Indian Tribe or individual subject to restrictions by the United States against alienation; (3) fee lands, either within or outside the reservation boundaries, owned by the tribal government; and (4) fee lands within the reservation boundaries owned by individual Indians.

If such areas are identified, the benefits of exclusion could include those we identified in recent critical habitat designations for Pacific salmon and steelhead (70 FR 52630; September 2, 2005), specifically: (1) The furtherance of established national policies, our Federal trust obligations and our deference to the tribes in management of natural resources on their lands; (2) the maintenance of effective long-term working relationships to promote species conservation on an ecosystem-wide basis; (3) the allowance for continued meaningful collaboration and cooperation in scientific work to learn more about the conservation needs of the species on an ecosystem-wide basis; and (4) continued respect for tribal sovereignty over management of natural resources on Indian lands through established tribal natural resource programs.

We also seek information from affected tribes concerning other tribal activities that may be affected in areas other than tribal lands (*i.e.*, bottom trawling and alternative energy projects in marine areas).

Critical Habitat Designation

We propose to designate approximately 325 miles (524 km) of riverine habitat and 1,058 square miles (2,739 sq km) of estuarine habitat in California, Oregon, and Washington, and 11,927 square miles (30,890 sq km) of coastal marine habitat off California, Oregon, and Washington within the geographical area presently occupied by the Southern DPS of green sturgeon. We also propose to designate approximately 136 square miles (352 sq km) of habitat within the Yolo and Sutter bypasses, adjacent to the Sacramento River, California. The proposed critical habitat areas contain physical or biological features essential to the conservation of the species that may require special management considerations or protection. We propose to exclude 13 areas from designation for which the benefit of exclusion outweighing the benefit of inclusion. We conclude that the exclusion of these areas will not result in the extinction of the Southern DPS. Although we have identified 7 presently unoccupied areas that may be later determined to be essential to conservation, we are not proposing any unoccupied areas for designation as critical habitat at this time, because we do not have sufficient information to determine that any of the unoccupied areas are essential to the conservation of the species.

Lateral Extent of Critical Habitat

For freshwater riverine habitats, we described the lateral extent of critical habitat units as the width of the stream channel defined by the ordinary high-water line, as defined by the U.S. Army Corps of Engineers (COE) in 33 CFR 329.11. The ordinary high-water line on non-tidal rivers is defined as ''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'' (33 CFR 329.11(a)(1)). In areas for which the ordinary high-water line has not been defined pursuant to 33 CFR 329.11, we defined the width of the stream channel by its bankfull elevation. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain (Rosgen, 1996) and is reached at a discharge which generally has a recurrence interval of 1 to 2 years on the annual flood series (Leopold *et al.*, 1992). For bays and estuarine areas, we defined the lateral extent by the mean higher high water (MHHW) line. For coastal marine habitats, the lateral extent to the west is defined by the 110 m depth bathymetry contour relative to the line of mean lower low water (MLLW) and shoreward to the area that is inundated by extreme high tide, or to the COLREGS demarcation lines delineating the boundary between estuarine and marine habitats. The textual descriptions of critical habitat in the section titled ''*226.215 Critical habitat for the Southern Distinct Population Segment of North American Green Sturgeon (Acipenser medirostris)*'' are the definitive source for determining the critical habitat boundaries. The overview maps provided in section ''*226.215 Critical habitat for the Southern Distinct Population Segment of North American Green Sturgeon (Acipenser medirostris)*'' are provided for general guidance purposes only and not as a definitive source for determining critical habitat boundaries.

As discussed in previous critical habitat designations, the quality of aquatic and estuarine habitats within stream channels and bays and estuaries is intrinsically related to the adjacent riparian zones and floodplain, to surrounding wetlands and uplands, and to non-fish-bearing streams above occupied stream reaches. Human activities that occur outside of designated streams, bays, or estuaries can destroy or adversely modify the essential physical and biological features within these areas. In addition, human activities occurring within and adjacent to reaches upstream or downstream of designated stream reaches or estuaries can also destroy or adversely modify the essential physical and biological features of these areas. Similarly, human activities that occur outside of designated coastal marine areas inundated by extreme high tide can destroy or adversely modify the essential physical and biological features of these areas. This designation will help to ensure that Federal agencies are aware of these important habitat linkages.

Effects of Critical Habitat Designation

ESA Section 7 Consultation

Section 7(a)(2) of the ESA requires Federal agencies, including NMFS, to insure that any action authorized, funded, or carried out by the agency

(agency action) does not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify designated critical habitat.

Federal agencies are also required to confer with NMFS regarding any actions likely to jeopardize a species proposed for listing under the ESA, or likely to destroy or adversely modify proposed critical habitat, pursuant to section 7(a)(4). A conference involves informal discussions in which NMFS may recommend conservation measures to minimize or avoid adverse effects. The discussions and conservation recommendations are to be documented in a conference report provided to the Federal agency. If requested by the Federal agency, a formal conference report may be issued, including a biological opinion prepared according to 50 CFR 402.14. A formal conference report may be adopted as the biological opinion when the species is listed or critical habitat designated, if no significant new information or changes to the action alter the content of the opinion.

When a species is listed or critical habitat is designated, Federal agencies must consult with NMFS on any agency actions to be conducted in an area where the species is present and that may affect the species or its critical habitat. During the consultation, NMFS would evaluate the agency action to determine whether the action may adversely affect listed species or critical habitat and issue its findings in a biological opinion. If NMFS concludes in the biological opinion that the agency action would likely result in the destruction or adverse modification of critical habitat, NMFS would also recommend any reasonable and prudent alternatives to the action. Reasonable and prudent alternatives are defined in 50 CFR 402.02 as alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that would avoid the destruction or adverse modification of critical habitat.

Regulations at 50 CFR 402.16 require Federal agencies that have retained discretionary involvement or control over an action, or where such discretionary involvement or control is authorized by law, to reinitiate consultation on previously reviewed actions in instances where: (1) Critical habitat is subsequently designated; or (2) new information or changes to the action may result in effects to critical habitat not previously considered in the biological opinion. Consequently, some Federal agencies may request reinitiation of consultation or conference with NMFS on actions for which formal consultation has been completed, if those actions may affect designated critical habitat or adversely modify or destroy proposed critical habitat.

Activities subject to the ESA section 7 consultation process include activities on Federal lands and activities on private or state lands requiring a permit from a Federal agency (*e.g.*, a section 10(a)(1)(B) permit from NMFS) or some other Federal action, including funding (*e.g.*, Federal Highway Administration (FHA) or Federal Emergency Management Agency (FEMA) funding). ESA section 7 consultation would not be required for Federal actions that do not affect listed species or critical habitat and for actions on non-Federal and private lands that are not Federally funded, authorized, or carried out.

Activities Likely To Be Affected

ESA section 4(b)(8) requires in any proposed or final regulation to designate critical habitat an evaluation and brief description of those activities (whether public or private) that may adversely modify such habitat or that may be affected by such designation. A wide variety of activities may affect the proposed critical habitat and may be subject to the ESA section 7 consultation process when carried out, funded, or authorized by a Federal agency. These include water and land management actions of Federal agencies (*e.g.*, U.S. Forest Service (USFS), Bureau of Land Management (BLM), Army Corps of Engineers (COE), U.S. Bureau of Reclamation (BOR), Natural Resource Conservation Service (NRCS), National Park Service (NPS), Bureau of Indian Affairs (BIA), the Federal Energy Regulatory Commission (FERC), and the Nuclear Regulatory Commission (NRC)) and related or similar Federally-regulated projects and activities Federal lands, including hydropower sites and proposed tidal/wave energy projects licensed by the FERC; nuclear power sites licensed by the NRC; dams built or operated by the COE or BOR; timber sales and other vegetation management activities conducted by the USFS, BLM and BIA; irrigation diversions authorized by the USFS and BLM; and road building and maintenance activities authorized by the USFS, BLM, NPA, and BIA. Other actions of concern include dredge and fill, mining, diking, and bank stabilization activities authorized or conducted by the COE, habitat modifications authorized by the FEMA, and approval of water quality standards and pesticide labeling and use restrictions administered by the Environmental Protection Agency (EPA).

Private entities may also be affected by this proposed critical habitat designation if a Federal permit is required, Federal funding is received, or the entity is involved in or receives benefits from a Federal project. For example, private entities may have special use permits to convey water or build access roads across Federal land; they may require Federal permits to construct irrigation withdrawal facilities, or build or repair docks; they may obtain water from Federally funded and operated irrigation projects; or they may apply pesticides that are only available with Federal agency approval. These activities will need to be evaluated with respect to their potential to destroy or adversely modify critical habitat. Changes to the actions to minimize or avoid destruction or adverse modification of proposed critical habitat may result in changes to some activities, such as the operations of dams and dredging activities. Transportation and utilities sectors may need to modify the placement of culverts, bridges, and utility conveyances (*e.g.*, water, sewer, and power lines) to avoid barriers to fish migration. Developments (*e.g.*, marinas, residential, or industrial facilities) occurring in or near streams, estuaries, or marine waters designated as critical habitat that require Federal authorization or funding may need to be altered or built in a manner to ensure that critical habitat is not destroyed or adversely modified as a result of the construction or subsequent operation of the facility.

Questions regarding whether specific activities will constitute destruction or adverse modification of critical habitat should be directed to NMFS (see **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT**).

Public Comments Solicited

To ensure the final action resulting from this proposal will be as accurate and as effective as possible, we solicit comments and suggestions from the public, other concerned governments and agencies, the scientific community, industry, or any other interested party concerning this proposed rule. Specifically, public comments are sought concerning: (1) Information describing the abundance, distribution, and habitat use of Southern DPS green sturgeon in freshwater rivers, bays, estuaries, and coastal marine waters; (2)

Information on the identification, location, and quality of physical or biological features which may be essential to the conservation of the Southern DPS; (3) Information regarding potential impacts of designating any particular area, including the types of Federal activities that may trigger an ESA section 7 consultation and the possible modifications that may be required of those activities as a result of section 7 consultation; (4) Information regarding the benefits of designating any particular area of the proposed critical habitat; (5) Information regarding the benefits of excluding particular areas from the critical habitat designation; (6) Current or planned activities in the areas proposed for designation and their possible impacts on proposed critical habitat; and (7) Any foreseeable economic, national security, or other relevant impacts resulting from the proposed designations.

We encourage comments on this proposal. You may submit your comments and materials by any one of several methods (see **ADDRESSES**). The proposed rule, maps, references, and other materials relating to this proposal can be found on our Web site at *http://swr.nmfs.noaa.gov*. We will consider all comments and information received during the comment period for this proposed rule in preparing the final rule.

Public Hearings

Regulations at 50 CFR 424.16(c)(3) require the Secretary to promptly hold at least one public hearing if any person requests one within 45 days of publication of a proposed rule to designate critical habitat. Requests for a public hearing must be made in writing (see **ADDRESSES**) by October 23, 2008. If a public hearing is requested, a notice detailing the specific hearing location and time will be published in the **Federal Register** at least 15 days before the hearing is to be held. Information on specific hearing locations and times will also be posted on our Web site at *http://swr.nmfs.noaa.gov*. These hearings provide the opportunity for interested individuals and parties to give comments, exchange information and opinions, and engage in a constructive dialogue concerning this proposed rule. We encourage the public's involvement in such ESA matters.

Peer Review

On July 1, 1994, a joint USFWS/NMFS policy for peer review was issued stating that the Services would solicit independent peer review to ensure the best biological and commercial data is used in the development of rulemaking actions and draft recovery plans under the ESA (59 FR 34270). On December 16, 2004, the Office of Management and Budget (OMB) issued its Final Information Quality Bulletin for Peer Review (Bulletin). The Bulletin was published in the **Federal Register** on January 14, 2005 (70 FR 2664), and went into effect on June 16, 2005. The primary purpose of the Bulletin is to improve the quality and credibility of scientific information disseminated by the Federal government by requiring peer review of ''influential scientific information'' and highly influential scientific information'' prior to public dissemination. Influential scientific information is defined as ''information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions.'' The Bulletin provides agencies broad discretion in determining the appropriate process and level of peer review. Stricter standards were established for the peer review of ''highly influential scientific assessments,'' defined as information whose ''dissemination could have a potential impact of more than $500 million in any one year on either the public or private sector or that the dissemination is novel, controversial, or precedent-setting, or has significant interagency interest.'' Two documents supporting this proposal to designate critical habitat for the Southern DPS of green sturgeon are considered influential scientific information and subject to peer review. These documents are the draft Biological Report and draft Economic Analysis. We have distributed the draft Biological Report and draft Economic Analysis for independent peer review and will address any comments received in developing the final drafts of the two reports. Both documents are available on our Web site at *http://swr.nmfs.noaa.gov*, on the Federal eRulemaking Web site at *http://www.regulations.gov*, or upon request (see **ADDRESSES**).

Required Determinations

Clarity of the Rule

Section I(12) of Executive Order (E.O.) 12866 requires each agency to write regulations and notices that are easy to understand. NMFS invites your comments on how to make this proposed rule easier to understand, including answers to questions such as the following: (1) Are the requirements in the rule clearly stated? (2) Does the rule contain technical language or jargon that interferes with its clarity? (3) Does the format of the rule (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce its clarity? (4) Would the rule be easier to understand if it were divided into more (but shorter) sections? (5) Is the description of the rule in the **SUPPLEMENTARY INFORMATION** section of the preamble helpful in understanding the rule? (6) What else could NMFS do to make the rule easier to understand? You may submit comments on how we could make this proposed rule easier to understand by any one of several methods (see **ADDRESSES**).

Regulatory Planning and Review (E.O. 12866)

This proposed rule has been determined to be significant for purposes of E.O. 12866. A draft economic report and ESA section 4(b)(2) report have been prepared to support the exclusion process under section 4(b)(2) of the ESA.

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 publishes a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis describing the effects of the rule on small entities (*i.e.*, small businesses, small organizations, and small government jurisdictions). We have prepared an initial regulatory flexibility analysis (IRFA), which is part of the draft Economic Analysis. This document is available upon request (see **ADDRESSES**), via our Web site at *http://swr.nmfs.noaa.gov*, or via the Federal eRulemaking Web site at *http://www.regulations.gov*. The results of the IRFA are summarized below.

At the present time, little information exists regarding the cost structure and operational procedures and strategies in the sectors that may be directly affected by the potential critical habitat designation. In addition, given the short consultation history for green sturgeon, there is significant uncertainty regarding the activities that may trigger an ESA section 7 consultation or how those activities may be modified as a result of consultation. With these limitations in mind, we considered which of the potential economic impacts we analyzed might affect small entities. These estimates should not be considered exact estimates of the impacts of potential critical habitat to individual businesses.

The impacts to small businesses were assessed for the following eight activities: dredging, in-water construction or alterations, NPDES activities and other activities resulting in non-point pollution, agriculture, dam operations, water diversion operations, bottom trawl fisheries, and power plant operations. The impacts on small entities were not assessed for LNG projects, desalination plants, tidal and wave energy projects, and restoration projects because there is great uncertainty regarding impacts to these activities, the activities are unlikely to be conducted by small entities, or the impacts to small businesses are expected to be minor.

Small entities were defined by the Small Business Administration size standards for each activity type. The majority (> 80 percent) of entities affected within each specific area would be considered a small entity. A total of 11,002 small businesses involved in the activities listed above would most likely be affected by the proposed critical habitat designation. The estimated annualized costs associated with section 7 consultations incurred per small entity range from $0 to $130,000, with the largest annualized impacts estimated for entities involved in bottom trawl fisheries ($10 to $130,000) and the operation of dams and water diversions ($0 to $89,000). The total estimated annualized costs of section 7 consultation incurred by small entities is estimated to range from $467,600 to $640,661 (the range is costs is due to varying costs associated with bottom trawl fisheries). The estimated economic impacts on small entities vary depending on the activity type and location.

As required by the RFA (as amended by the SBREFA), we considered various alternatives to the proposed critical habitat designation for the Southern DPS. We considered and rejected the alternative of not designating critical habitat for the Southern DPS because such an approach does not meet the legal requirements of the ESA. We also considered and rejected the alternative of proposing the designation of all potential critical habitat areas of the Southern DPS (*i.e.*, no areas are excluded), because for several areas, the economic benefits of exclusion outweighed the benefits of inclusion and we did not determine that exclusion of these areas would significantly impede conservation of the species or result in extinction of the species. We have considered and evaluated each of these alternatives in the context of the section 4(b)(2) process of weighing benefits of exclusion against benefits of designation, and determined that the current proposal provides an appropriate balance between conservation needs and the associated economic and other relevant impacts. It is estimated that small entities will save from $165,842 to $268,882 in compliance costs, due to the proposed exclusions made in this designation.

E.O. 13211

On May 18, 2001, the President issued an Executive Order on regulations that significantly affect energy supply, distribution, and use. E.O. 13211 requires agencies to prepare Statements of Energy Effects when undertaking an action expected to lead to the promulgation of a final rule or regulation that is a significant regulatory action under E.O. 12866 and is likely to have a significant adverse effect on the supply, distribution, or use of energy.

We have considered the potential impacts of this action on the supply, distribution, or use of energy (see draft economic analysis report). Activities associated with the supply, distribution, or use of energy that may be affected by the critical habitat designation include the operation of: (1) Dams and dam facilities; (2) power plants; (3) proposed alternative energy projects; and (4) LNG projects.

All of the 189 dams analyzed in the economic analysis exist within the areas occupied by Southern DPS green sturgeon and may be affected by the potential critical habitat designation. The dams are located within the Central Valley, CA, and in the lower Columbia River estuary. Owners or operators of the dams may be required to undertake specific modifications to avoid destroying or adversely modifying the proposed critical habitat for green sturgeon. Given substantial variation in the potential for effects on green sturgeon and critical habitat, such modifications would be determined on a case-by-case basis, and costs would vary widely. Because the areas overlap with existing critical habitat designations for salmon species, and because the guidelines we have in place for dam modifications focus on listed salmonids, we will likely recommend modifications to dams that are similar to those we recommend for salmonids until additional information on green sturgeon indicates otherwise. Thus, the additional effects of the critical habitat designation for green sturgeon would likely be minimal. In addition, modifications required for the protection of critical habitat would likely be similar to those required under the jeopardy standard.

Of the 58 power plants analyzed in the economic analysis, approximately 56 power plants exist within the areas occupied by Southern DPS green sturgeon and may be affected by the potential critical habitat designation. The installation of new technology to cool thermal effluents may be required under an ESA section 7 consultation. All of the power plants except for one located on the California coast are subject to existing protections for salmon species. For similar reasons given in the previous paragraph, we would likely recommend modifications to power plants that are similar to those we recommend for protecting listed salmonid critical habitat until additional information indicates otherwise. For the one coastal power plant, modifications required for the protection of critical habitat would likely be similar to those required under the jeopardy standard.

Of the 36 alternative energy projects analyzed in the economic analysis, approximately 18 alternative energy projects have pending applications or have received preliminary permits to operate within bays, estuaries, and coastal marine waters proposed for designation as critical habitat for the Southern DPS of green sturgeon. Given the necessary timeframes for project construction, it may be reasonable to assume that this set of projects will incur project modification costs related to green sturgeon critical habitat within the next 20 years. However, it should also be noted that other new permit applications are likely to be filed in the future, and that rate of application may be increasing. The Federal Energy Regulatory Commission (FERC) points out that while it received only one application between 2004 and 2005 for hydrokinetic (tidal- and wave-energy) projects, it received seven preliminary permit applications in both 2006 and 2007 within the critical habitat study area, excluding Alaska waters. We seek comment on the likely number of projects within the timeframe of this analysis. Relevant information received will inform our final analysis.

Because these projects are in their preliminary stages, it is not clear what effects the projects will have on habitats and natural resources, nor what effects a critical habitat designation would have on these projects. Concerns over the entrainment or impingement of green sturgeon in structures associated with alternative energy projects would be addressed under the jeopardy standard, whereas impacts on passage and water quality would be addressed under the adverse modification provision. Such impacts are of concern

for other fish species as well as for green sturgeon (McIsaac, 2008, Letter from the Pacific Fishery Management Council to Randall Luthi, Minerals Management Service). It is likely that management measures to minimize or avoid habitat impacts for other species will be required for alternative energy projects. Based on the best available information, the project modifications we would require to protect green sturgeon critical habitat would likely be similar to those applied for the protection of other marine species.

Of the 12 LNG projects analyzed in the economic analysis, there are 4 proposed LNG projects within the areas proposed for designation as critical habitat, one within Coos Bay and three within the lower Columbia River. Like the alternative energy projects, there is a high degree of uncertainty regarding whether these proposed projects will be implemented. As a result, it is unclear at this time what effects a critical habitat designation would have on these proposed LNG projects. In cases where listed salmon and steelhead species or critical habitat designated for these species occurs within the areas where proposed LNG projects are located (*e.g.*, in the Lower Columbia River), the best available information indicates that measures implemented for the protection of these species would be similar to those required to protect critical habitat for green sturgeon. In areas where listed salmon and steelhead or critical habitat areas designated for these species are not present (*e.g.*, in Coos Bay, where critical habitat has not been designated for salmon and steelhead), measures implemented to avoid adverse modification of green sturgeon habitat may result in energy impacts.

Based on this preliminary analysis, we have initially determined that the designation of critical habitat for Southern DPS green sturgeon would not result in significant impacts on the supply, distribution, or use of energy.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act, NMFS makes the following findings:

(A) This proposed 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 government's ''lack authority'' to adjust accordingly. (At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children 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 an enforceable duty on non-Federal government entities or private parties. The only regulatory effect of a critical habitat designation is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under ESA section 7. Non-Federal entities who receive funding, assistance, or permits from Federal agencies, or otherwise require approval or authorization from a Federal agency for an action may be indirectly affected by the designation of critical habitat. 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 critical habitat shift the costs of the large entitlement programs listed above to state governments.

(b) Due to the prohibition against take of the Southern DPS both within and outside of the designated areas, we do not anticipate that this proposed rule will significantly or uniquely affect small governments. As such, a Small Government Agency Plan is not required.

Takings

Under E.O. 12630, Federal agencies must consider the effects of their actions on constitutionally protected private property rights and avoid unnecessary takings of property. A taking of property includes actions that result in physical invasion or occupancy of private property, and regulations imposed on private property that substantially affect its value or use. In accordance with E.O. 12630, this proposed rule does not have significant takings implications. A takings implication assessment is not required. The designation of critical habitat affects only Federal agency actions. This proposed rule would not increase or decrease the current restrictions on private property concerning take of Southern DPS fish, nor do we expect the proposed critical habitat designation to impose additional burdens on land use or affect property values. Additionally, the proposed critical habitat designation does not preclude the development of Habitat Conservation Plans and issuance of incidental take permits for non-Federal actions. Owners of areas included within the proposed critical habitat designation would continue to have the opportunity to use their property in ways consistent with the survival of listed Southern DPS.

Federalism

In accordance with E.O. 13132, we determined that this proposed rule does not have significant Federalism effects and that a Federalism assessment is not required. In keeping with Department of Commerce policies, we request information from, and will coordinate development of this proposed critical habitat designation with, appropriate state resource agencies in California, Oregon, Washington, and Alaska. The proposed designation may have some benefit to state and local resource agencies in that the areas essential to the conservation of the species are more clearly defined, and the PCEs of the habitat necessary for the survival of the Southern DPS of green sturgeon are specifically identified. While this designation does not alter where and what Federally sponsored activities may occur, it may assist local governments in long-range planning (rather than waiting for case-by-case ESA section 7 consultations to occur).

Civil Justice Reform

In accordance with E.O. 12988, we have determined that this proposed rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the E.O. We

are proposing to designate critical habitat in accordance with the provisions of the ESA. 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 Southern DPS of green sturgeon.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This proposed rule does not contain new or revised information collections that require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act. This proposed 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 of 1969 (NEPA)

NMFS has determined that an environmental analysis as provided for under the NEPA of 1969 for critical habitat designations made pursuant to the ESA is not required. See *Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. Denied, 116 S.Ct 698 (1996).

Government-to-Government Relationship With Tribes

The longstanding and distinctive relationship between the Federal and tribal governments is defined by treaties, statutes, executive orders, judicial decisions, and agreements, which differentiate tribal governments from the other entities that deal with, or are affected by, the Federal government. This relationship has given rise to a special Federal trust responsibility involving the legal responsibilities and obligations of the United States toward Indian Tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. Pursuant to these authorities lands have been retained by Indian Tribes or have been set aside for tribal use. These lands are managed by Indian Tribes in accordance with tribal goals and objectives within the framework of applicable treaties and laws. E.O. 13175, Consultation and Coordination with Indian Tribal Governments, outlines the responsibilities of the Federal Government in matters affecting tribal interests.

There is a broad array of activities on Indian lands that may trigger ESA section 7 consultations. In the case of Southern DPS green sturgeon, we reviewed maps indicating that very few if any areas under consideration as critical habitat actually overlap with Indian lands. Nearshore coastal areas comprise the vast majority of these possible overlap areas, but it is unclear which if any Indian lands are subject to consideration for possible exclusion. In particular, we lack information regarding where Indian land boundaries lie in relation to shoreline tidal boundaries used to identify the lateral extent in this proposed rule. Our preliminary assessment indicates that the following federally recognized tribes (73 FR 18553, April 4, 2008) have lands that may be in close proximity to areas under consideration for designation as critical habitat for Southern DPS green sturgeon: The Hoh, Jamestown S'Klallam, Lower Elwha, Makah, Quileute, Quinault, and Shoalwater Bay tribes in Washington; the Confederated Tribes of Coos Lower Umpqua and Siuslaw Indians and the Coquille Tribe in Oregon; and the Cachil DeHe Band of Wintun Indians of the Colusa Indian Community, Wiyot Tribe, and Yurok Tribe in California.

We seek comments regarding these areas and will continue to investigate whether any Indian lands overlap, and may warrant exclusion from, critical habitat for Southern DPS green sturgeon. Indian lands are those defined in the Secretarial Order ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997), including: (1) Lands held in trust by the United States for the benefit of any Indian tribe; (2) land held in trust by the United States for any Indian Tribe or individual subject to restrictions by the United States against alienation; (3) fee lands, either within or outside the reservation boundaries, owned by the tribal government; and (4) fee lands within the reservation boundaries owned by individual Indians.

If such areas are identified, the benefits of exclusion could include those we identified in recent critical habitat designations for Pacific salmon and steelhead (70 FR 52630; September 2, 2005), specifically: (1) The furtherance of established national policies, our Federal trust obligations and our deference to the tribes in management of natural resources on their lands; (2) the maintenance of effective long-term working relationships to promote species conservation on an ecosystem-wide basis; (3) the allowance for continued meaningful collaboration and cooperation in scientific work to learn more about the conservation needs of the species on an ecosystem-wide basis; and (4) continued respect for tribal sovereignty over management of natural resources on Indian lands through established tribal natural resource programs.

We also seek information from affected tribes concerning other tribal activities that may be affected in areas other than tribal lands (*i.e.*, bottom trawling and alternative energy projects in marine areas).

References Cited

A complete list of all references cited herein is available upon request (see **ADDRESSES** section) or via our Web site at *http://swr.nmfs.noaa.gov.*

List of Subjects in 50 CFR Part 226

Endangered and threatened species.

Dated: August 29, 2008.

John Oliver,

Deputy Assistant Administrator for Operations, National Marine Fisheries Service.

For the reasons set out in the preamble, we propose to amend part 226, title 50 of the Code of Federal Regulations as set forth below:

PART 226—DESIGNATED CRITICAL HABITAT

1. The authority citation of part 226 continues to read as follows:

Authority: 16 U.S.C. 1533.

2. Add § 226.216, to read as follows:

§ 226.216 Critical habitat for the Southern Distinct Population Segment of North American Green Sturgeon (Acipenser medirostris).

Critical habitat is designated for the Southern Distinct Population Segment of North American green sturgeon (Southern DPS) as described in this section. The textual descriptions of critical habitat in this section are the definitive source for determining the critical habitat boundaries. The overview maps are provided for general guidance purposes only and not as a definitive source for determining critical habitat boundaries.

(a) *Critical habitat boundaries.* Critical habitat in freshwater riverine areas includes the stream channels and a lateral extent as defined by the ordinary high-water line (33 CFR 329.11). In areas for which the ordinary high-water line has not been defined pursuant to 33 CFR 329.11, the lateral extent will be defined by the bankfull elevation. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain and is reached at a discharge which generally has a recurrence interval of 1

to 2 years on the annual flood series. Critical habitat in bays and estuaries includes tidally influenced areas as defined by the elevation of mean higher high water. The boundary between nearshore coastal marine areas and bays and estuaries are delineated by the COLREGS lines (33 CFR part 80). Critical habitat in coastal marine areas is defined by the zone between the 110 m depth bathymetry line and the line on shore reached by extreme high water, or to the COLREGS lines.

(1) *Coastal marine areas:* All U.S. coastal marine waters out to the 110 m depth bathymetry line (relative to MLLW) from Monterey Bay, California (36°38′12″ N./ 121°56′13″ W.) north and east to include waters in the Strait of Juan de Fuca, Washington. The Strait of Juan de Fuca includes all U.S. marine waters: In Clallam County east of a line connecting Cape Flattery (48°23′10″ N./ 124°43′32″ W.), Tatoosh Island (48°23′30″ N./ 124°44′12″ W.), and Bonilla Point, British Columbia (48°35′30″ N./ 124°43′00″ W.); in Jefferson and Island counties north and west of a line connecting Point Wilson (48°08′38″ N./ 122°45′07″ W.) and Admiralty Head (48°09′18″ N./ 122°40′41″ W.); and in San Juan and Skagit counties south of lines connecting the U.S.-Canada border (48°27′27″ N./ 123°09′46″ W.) and Pile Point (48°28′56″ N./ 123°05′33″ W.), Cattle Point (48°27′1″ N./ 122°57′39″ W.) and Davis Point (48°27′21″ N./ 122°56′03″ W.), and Fidalgo Head (48°29′34″ N./ 122°42′07″ W.) and Lopez Island (48°28′43″ N./ 122°49′08″ W.).

(2) *Freshwater riverine habitats:* Critical habitat is designated to include the following freshwater riverine areas in California:

(i) Sacramento River, California. From the Sacramento I-Street Bridge upstream to Keswick Dam (40°36′39″ N./ 122°26′41″ W.), including the waters encompassed by the Yolo Bypass and the Sutter Bypass areas.

(ii) Lower Feather River, California. From the confluence with the mainstem Sacramento River upstream to Oroville Dam (39°32′35″ N./ 121°29′27″ W.).

(iii) Lower Yuba River, California. From the confluence with the mainstem Feather River upstream to Daguerre Dam (39°12′35″ N./ 121°26′33″ W.).

(3) *Coastal bays and estuaries:* Critical habitat is designated to include the following coastal bays and estuaries in California, Oregon, and Washington:

(i) Central Valley, California. All tidally influenced areas of San Francisco Bay, San Pablo Bay, Suisun Bay, and the Sacramento-San Joaquin Delta up to the elevation of mean higher high water, including tributaries upstream to the head of tide. Designated areas in the Sacramento-San Joaquin Delta include all waterways within the area defined in California Water Code Section 12220, except for the following excluded slough areas: Fivemile Slough (all reaches upstream from its confluence with Fourteenmile Slough at 38°00′50″ N./ 121°22′09″ W.); Sevenmile Slough (all reaches between Threemile Slough at 38°06′55″ N./ 121°40′55″ W. and Jackson Slough at 38°06′59″ N./ 121°37′44″ W.); Snodgrass Slough (all reaches upstream from Lambert Road at 38°19′14″ N./ 121°31′08″ W.); Tom Paine Slough (all reaches upstream from its confluence with Middle River at 37°47′25″ N./ 121°25′08″ W.); and Trapper Slough (all reaches upstream from 37°53′36″ N./ 121°29′15″ W.).

(ii) Humboldt Bay, California: All tidally influenced areas of Humboldt Bay up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(iii) Coos Bay, Oregon. All tidally influenced areas of Coos Bay up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(iv) Winchester Bay, Oregon. All tidally influenced areas of Winchester Bay up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(v) Yaquina Bay, Oregon. All tidally influenced areas of Yaquina Bay up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(vi) Lower Columbia River, Washington and Oregon. All tidally influenced areas of the Columbia and Willamette Rivers downstream of Bonneville Dam and Willamette Falls and up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(vii) Willapa Bay, Washington. All tidally influenced areas of Willapa Bay up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(viii) Grays Harbor, Washington. All tidally influenced areas of Grays Harbor up to the elevation of mean higher high water, including tributaries upstream to the head of tide.

(b) *Primary constituent elements.* The primary constituent elements essential for the conservation of the Southern DPS of green sturgeon are:

(1) *For freshwater riverine systems:*

(i) Food resources. Abundant prey items for larval, juvenile, subadult, and adult life stages.

(ii) Substrate type or size (*i.e.*, structural features of substrates). Substrates suitable for egg deposition and development (*e.g.*, bedrock sills and shelves, cobble and gravel, or hard clean sand, with interstices or irregular surfaces to ''collect'' eggs and provide protection from predators, and free of excessive silt and debris that could smother eggs during incubation), larval development (*e.g.*, substrates with interstices or voids providing refuge from predators and from high flow conditions), and subadults and adults (*e.g.*, substrates for holding and spawning).

(iii) Water flow. A flow regime (*i.e.*, the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) necessary for normal behavior, growth, and survival of all life stages.

(iv) Water quality. Water quality, including temperature, salinity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages.

(v) Migratory corridor. A migratory pathway necessary for the safe and timely passage of Southern DPS fish within riverine habitats and between riverine and estuarine habitats (*e.g.*, an unobstructed river or dammed river that still allows for safe and timely passage).

(vi) Depth. Deep (≥5 m) holding pools for both upstream and downstream holding of adult or subadult fish, with adequate water quality and flow to maintain the physiological needs of the holding adult or subadult fish.

(vii) Sediment quality. Sediment quality (*i.e.*, chemical characteristics) necessary for normal behavior, growth, and viability of all life stages.

(2) *For estuarine habitats:*

(i) Food resources. Abundant prey items within estuarine habitats and substrates for juvenile, subadult, and adult life stages.

(ii) Water flow. Within bays and estuaries adjacent to the Sacramento River (*i.e.*, the Sacramento-San Joaquin Delta and the Suisun, San Pablo, and San Francisco bays), sufficient flow into the bay and estuary to allow adults to successfully orient to the incoming flow and migrate upstream to spawning grounds.

(iii) Water quality. Water quality, including temperature, salinity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages.

(iv) Migratory corridor. A migratory pathway necessary for the safe and timely passage of Southern DPS fish within estuarine habitats and between estuarine and riverine or marine habitats.

(v) Depth. A diversity of depths necessary for shelter, foraging, and migration of juvenile, subadult, and adult life stages.

(vi) Sediment quality. Sediment quality (*i.e.*, chemical characteristics) necessary for normal behavior, growth, and viability of all life stages.

(3) *For nearshore coastal marine areas:*

(i) Migratory corridor. A migratory pathway necessary for the safe and timely passage of Southern DPS fish within marine and between estuarine and marine habitats.

(ii) Water quality. Nearshore marine waters with adequate dissolved oxygen levels and acceptably low levels of contaminants (*e.g.*, pesticides, organochlorines, elevated levels of heavy metals) that may disrupt the normal behavior, growth, and viability of subadult and adult green sturgeon.

(iii) Food resources. Abundant prey items for subadults and adults, which may include benthic invertebrates and fishes.

(c) Maps of proposed critical habitat for the Southern DPS of green sturgeon follow:

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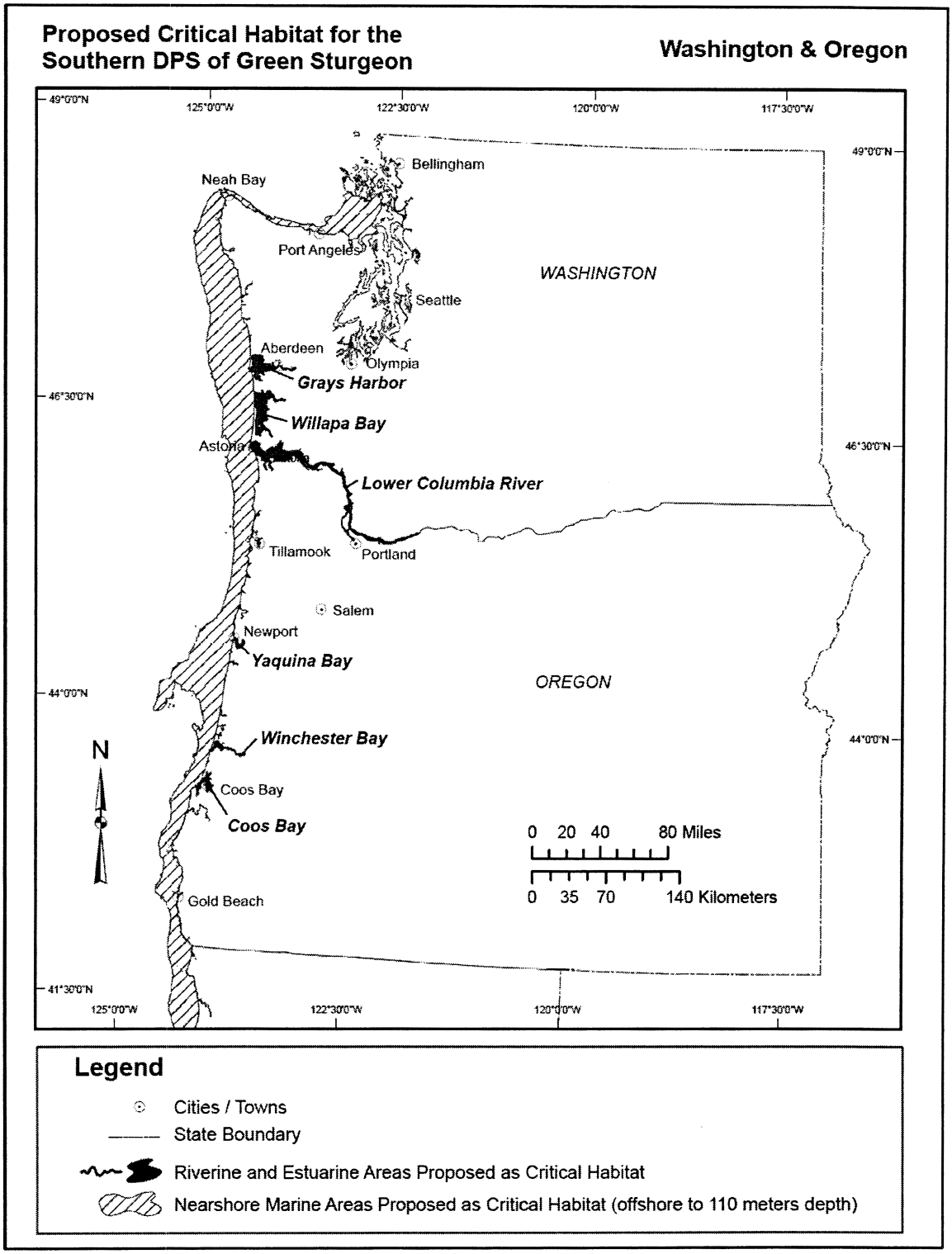
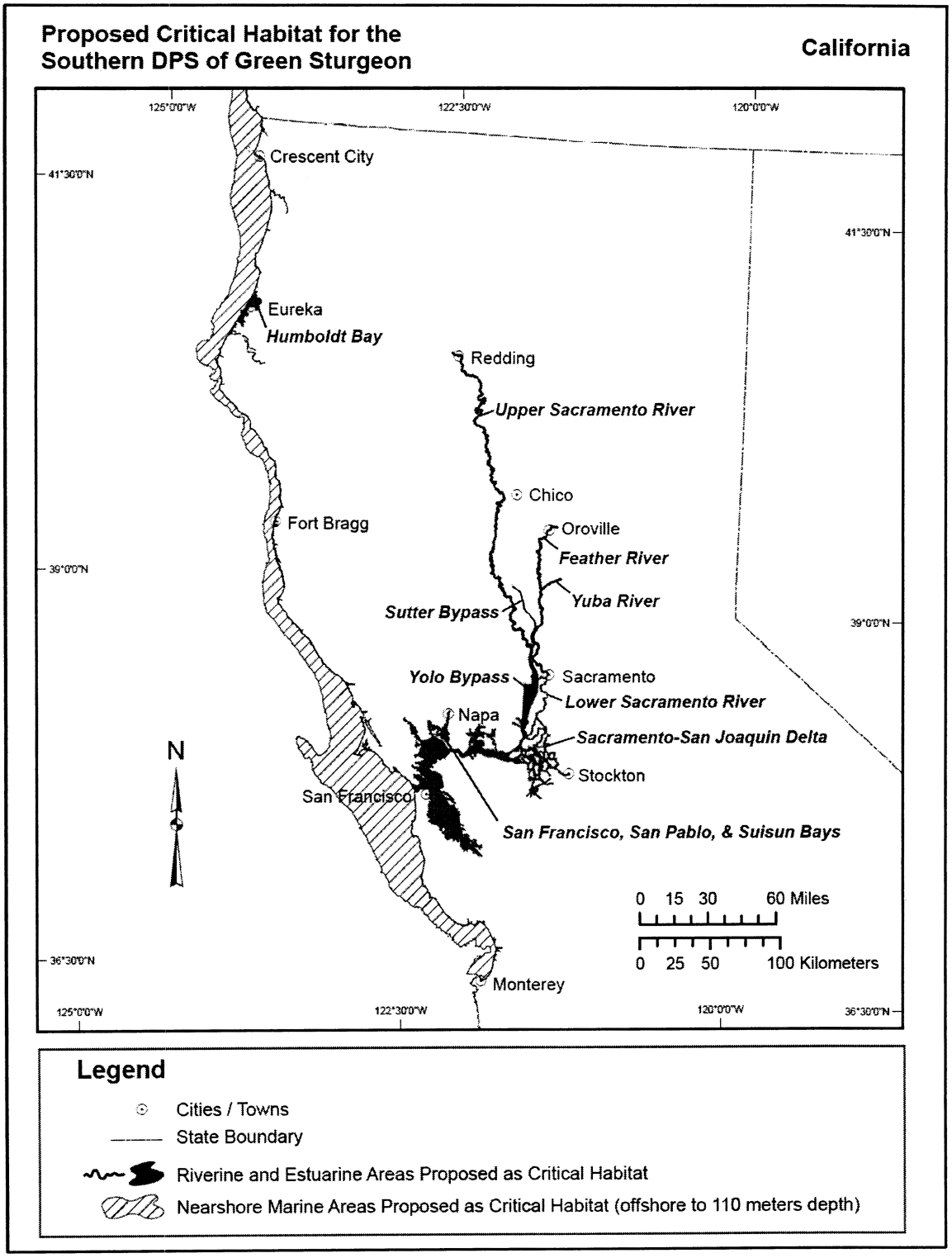

Proposed Critical Habitat for the Southern DPS of Green Sturgeon
Washington & Oregon
49°0'0"N
125°0'0"W
122°30'0"W
120°0'0"W
117°30'0"W
46°30'0"N
44°0'0"N
41°30'0"N
Bellingham
Neah Bay
Port Angeles
WASHINGTON
Seattle
Aberdeen
Olympia
Grays Harbor
Willapa Bay
Astoria
Lower Columbia River
Tillamook
Portland
Salem
Newport
Yaquina Bay
OREGON
Winchester Bay
Coos Bay
Coos Bay
Gold Beach
N
0 20 40 80 Miles
0 35 70 140 Kilometers
Legend
Cities / Towns
State Boundary
Riverine and Estuarine Areas Proposed as Critical Habitat
Nearshore Marine Areas Proposed as Critical Habitat (offshore to 110 meters depth)



[FR Doc. E8–20632 Filed 9–5–08; 8:45 am]
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