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KEY INFORMATION

Area of Concern

West coast of North America, from Baja California to Canada.

Year Identified as “Species of Concern”
2003

Factors for Decline

- Water development
- Land use
- Fishing
- Bycatch

Conservation Designations

IUCN: Near Threatened
American Fisheries Society: Endangered
Species of Greatest Conservation Need: CA

Brief Species Description:

The green sturgeon is a widely distributed, ocean-oriented sturgeon found in nearshore marine waters from Baja Mexico to Canada. Green sturgeon are **anadromous**, spawning in the Sacramento, Klamath and Rogue rivers in the spring. Spawning occurs in deep pools or “holes” in large, turbulent river mainstreams. Specific spawning habitat preferences are unclear, but are likely large cobbles, but can range from clean sand to bedrock. Individuals spawn every few years beginning about age 15. Adults migrate to the north in spring (generally north of Vancouver Island Canada) and return south in the spring (S. Lindley, NMFS, personal communication).

Two **distinct population segments** (DPS) have been defined for *A. medirostris* (Figure 1)—a northern DPS (spawning populations in the Klamath and Rogue rivers) and a southern DPS (spawners in the Sacramento River) (Adams *et al.* 2002). The southern DPS was listed as threatened in 2006.

Green sturgeon can be distinguished from white sturgeon, with which they co-occur, by the number of **scutes** along the side of the body (23-30 compared to >38 for white sturgeon), the presence of 1-2 scutes behind the dorsal fin (white sturgeon have none), and a relatively long snout with **barbels** closer to the mouth than the tip of the snout. While many green sturgeon are olive-green on their dorsal side, they can be gray or golden brown. Green sturgeon can reach 7 feet (210 cm) in length and weigh up to 350 pounds (159 kg). They eat burrowing shrimps like *Upogebia* and *Neotrypaea*.

Rationale for “Species of Concern” Listing:

Demographic and Genetic Diversity Concerns:

Musick *et al.* (2000) categorized green sturgeon as endangered, based on life history characteristics (discussed below) and a claimed 88% decline in abundance, attributed to Houston (1988). Adams *et al.* (2002) show the real source of the 88% decline statistic appears to be Cech (1992), who described the reduction in commercial landings of all sturgeon (mostly white) for the 1887-1901 period. The limited contemporary data on green sturgeon abundance comes mainly from



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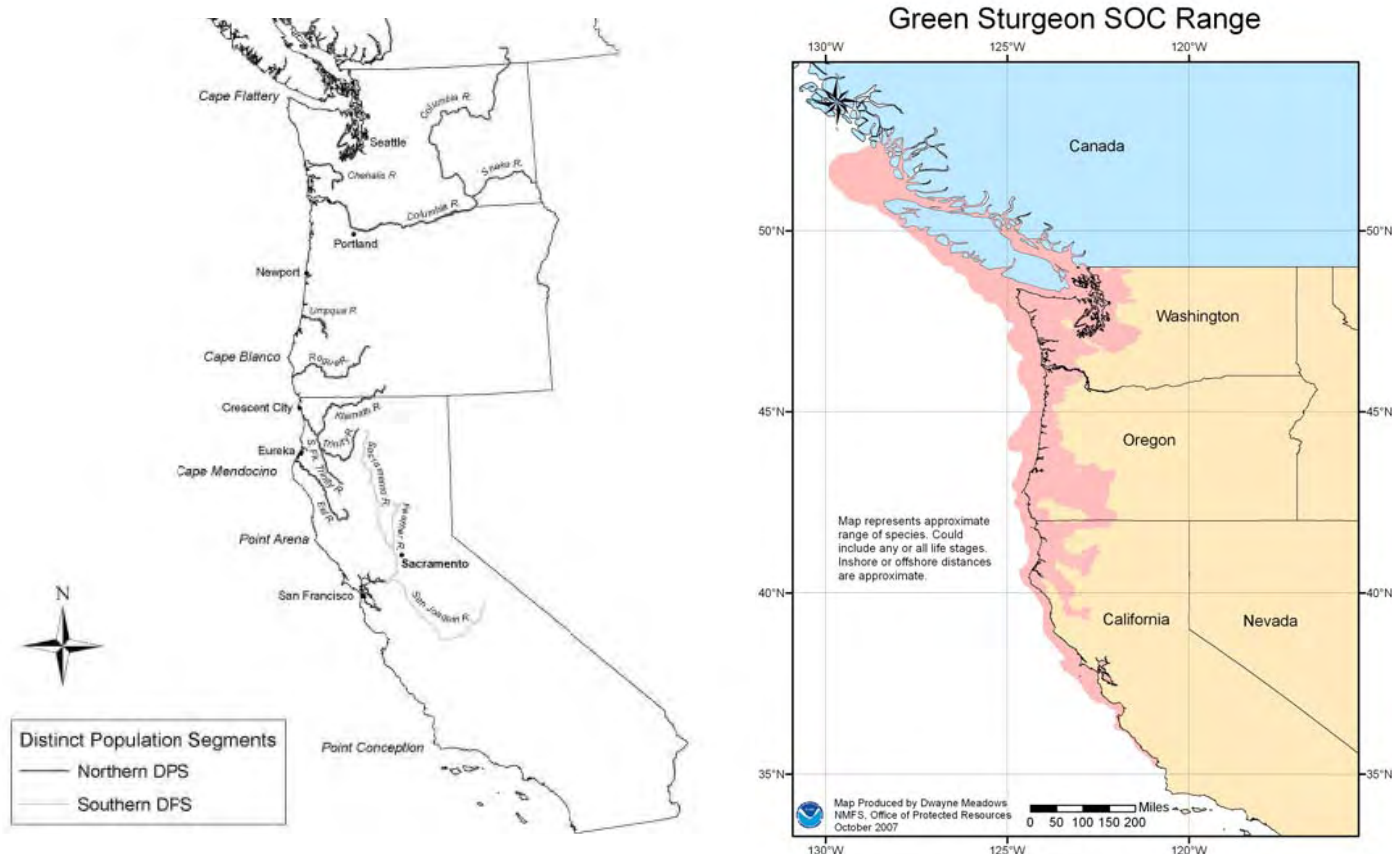


Figure 1. Left: Distinct Population Segment stream locations, and: Right: Watershed and ocean range area for the green sturgeon northern DPS species of concern.

fisheries landings. Interpretation of much of the landings data is difficult because green sturgeon are not the targeted species, and effort levels have changed over time (generally declining). The best indicator of abundance for the Northern DPS appear to be the Klamath Tribal harvest, where green sturgeon are taken as bycatch in a salmon gillnet fishery and effort has not changed substantially over the period of record (Figure 2). Catch has been fairly constant, with 200-400 fish taken per year. There is no indication of a changing size distribution that would indicate a fishing-down of older members of the population. Coastwide catch data show a decline from 9065 fish in 1986 to 512 in 2003 that includes fish from both DPSs (NMFS 2005).

Green sturgeon have many life history characteristics that make them vulnerable to habitat degradation and overexploitation. These include large size, late maturity, low productivity, long life span, and an anadromous life history.

Factors for Decline:

While it is not known to what extent the abundance of green sturgeon has declined, it is probable that they have declined over the past century and a half. The freshwater habitat used by green sturgeon for spawning has been affected by habitat alteration from water development and land-use practices causing sedimentation, especially in the Klamath, Rogue, and Eel rivers. Unlike



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the situation in the southern DPS, exotic species do not appear to be a problem for the northern DPS (NMFS 2005).

Green sturgeon congregate, in coastal waters and estuaries, including non-[natal estuaries](#), where they are vulnerable to capture in salmon gillnet and other fisheries (Moser and Lindley 2007). They enter estuaries, in Washington at least, during the summer when estuary water temperatures are more than 2°C (4°F) warmer than adjacent coastal waters (Moser and Lindley 2007).

Fishing regulations generally do not differentiate between green and white sturgeon, but are written with white sturgeon in mind. Because green sturgeon are generally smaller than white sturgeon, the slot limits (upper and lower size limits) defining which fish can be retained may be inappropriate for green sturgeon. Harvest of green sturgeon has been reduced in the last 10 years due to regulation changes in the fisheries that take green sturgeon as bycatch, but tribal harvest remains.

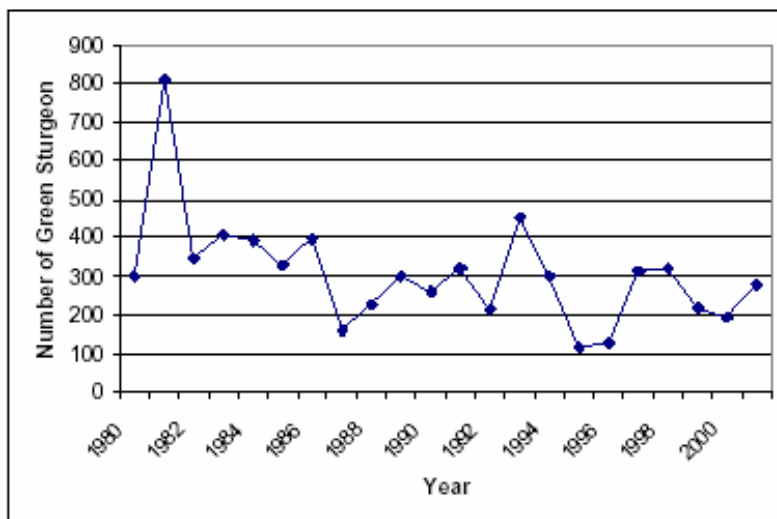


Figure 2. Catch of green sturgeon in the Yurok Tribal salmon gillnet fishery on the Klamath River Data from NMFS 2005.

Status Reviews/Research Underway:

A recent status review update (NMFS 2005) led to the listing of the southern DPS as threatened and the continued presence of the northern DPS on the species of concern list.

Data Deficiencies:

Data distinguishing the amount of ocean catch of fish by DPS and better population size and biomass data would be helpful. Better data on other spawning sites and the Trinity and Eel River animals are needed.

Existing Protections and Conservation Actions:

Commercial fisheries have been prohibited in the Columbia River and Willapa Bay since 2001.

References:

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- Musick, J.A., M.M. Harbin, S.A. Berkeley, G.H. Burgess, A.M. Eklund, L. Findley, R.G. Gilmore, J.T. Golden, D.S. Ha, G.R. Huntsman, J.C. McGovern, S.J. Parker, S.G. Poss, E. Sala, 2000. Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids). Fisheries 25:6-30.
- NMFS 2005. Green Sturgeon (*Acipenser medirostris*) status review update. NMFS Southwest Fish Sci Ctr, Santa Cruz, CA. 31 p. http://www.nmfs.noaa.gov/pr/pdfs/statusreviews/greensturgeon_update.pdf

Point(s) of contact for questions or further information:

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact NMFS, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, soc.list@noaa.gov; <http://www.nmfs.noaa.gov/pr/species/concern/>, or Dr. Scott Rumsey, NMFS, Northwest Region, Protected Resources Division, 525 NE Oregon Street #500, Portland, OR 97232, (503) 872-2791, Scott.Rumsey@noaa.gov.