

mainstem commercial fisheries through the remainder of the fall fishing period. White sturgeon population estimates for 2002 did not increase as expected, and in December of 2001 the Compact adopted reduced catch guidelines for 2002 as a management buffer and to compensate for catch overages that occurred in 2001. In 2002, the Compact prohibited retention of green sturgeon during August fisheries and allowed retention during September and October fisheries. This management action provided flexibility for shaping September and October salmon fisheries and allowed the commercial fishery access to their allocation of white sturgeon without any target sturgeon seasons, further minimizing green sturgeon bycatch. The Compact will meet in January 2003 to review its sturgeon fishery management agreement and it is expected that continued efforts will be taken to minimize green sturgeon bycatch.

Ocean and coastal estuarine fisheries in Washington and Oregon accounted for approximately 28 percent and 8 percent, respectively, of the total green sturgeon harvest bycatch in the period between 1985–2001. Since the mid to late 1990's, however, the overall catch of green sturgeon in these fisheries has also declined substantially, most likely due to changes in fishing regulations. White and green sturgeon fisheries in Oregon coastal areas are managed under size and bag limit regulations consistent with the lower Columbia River regulations.

Non-tribal harvest impacts on green sturgeon in coastal rivers of California are considered to be minimal (CDFG, 2002). Commercial fishing for green sturgeon (and white sturgeon) has been prohibited throughout the state since the early 1900s. Recreational fishing for green sturgeon has been prohibited since the early 1990s in virtually all coastal watersheds where green sturgeon are known to occur from the Eel River northward to the Oregon border, including the Klamath-Trinity basin. The Klamath River tribal (Yurok and Hoopa Tribes) fisheries accounted for about 8 percent of the total green sturgeon harvest that occurred between 1985–2001, with an average catch of approximately 260 fish per year. These Tribal fisheries do impact a spawning population in the Klamath River, but the available data for the Yurok Tribal fishery show that both catch and CPUE have been very stable since 1985, with no evidence of a decline. There is no evidence from the available length-frequency data for harvested green sturgeon that larger fish have been removed from the population or that the

size structure of the population has been altered by this or other fisheries.

Conclusion: The available population information for green sturgeon in the northern DPS does not provide any evidence that the abundance of green sturgeon in this DPS is declining. In particular, the fishery-dependent harvest data from the Yurok tribal fishery show no evidence that catch or CPUE are declining, or that large fish are being removed from that spawning population. Despite this information, NMFS' BRT was uncertain about the status of green sturgeon in this DPS because no direct fisheries-independent population estimates were available. For this reason, the BRT believes it is essential that immediate efforts be undertaken to implement direct monitoring of green sturgeon in this DPS. There are some risk factors of potential concern for this DPS, most notably bycatch harvest in various fisheries; however, there is uncertainty about the overall level of risk facing this DPS. In the case of harvest bycatch for which there is the most information, it is not possible to directly assess the impact of harvest on green sturgeon in this DPS. Nevertheless, the available data shows that overall green sturgeon harvest has declined substantially since the mid 1980s due to increasingly restrictive harvest management measures, suggesting that risk from harvest has been also reduced. Although the risk to green sturgeon from harvest bycatch may be declining, NMFS believes it may be prudent for fisheries managers to continue recent conservative management measures as well as consider additional harvest protections until population monitoring information can be obtained to assess the status of this DPS with greater certainty. Based on a review of the best available information, NMFS concludes that the northern green sturgeon DPS is not presently in danger of extinction nor is it likely to become so in the foreseeable future.

Southern Green Sturgeon DPS

The only data relevant to assessing the abundance and/or population trends of green sturgeon in this DPS are estimates of green sturgeon abundance made by the California Department of Fish and Game in San Pablo Bay incidental to monitoring of white sturgeon (CDFG, 2002). Tagging experiments have been conducted irregularly since 1954, but since 1990 tagging has been conducted for two years consecutively and then the next two are skipped. Over this period, a total of 536 green sturgeon were captured and 233 fish were tagged. The

green sturgeon estimate is obtained by multiplying the ratio of legal-size (earlier minimum slot limits of 102 cm) green sturgeon to legal-size white sturgeon caught in the tagging program by the legal-size white sturgeon population estimate. Although this is a fishery-independent estimate of green sturgeon abundance, there are a number of problems associated with these estimates; the most important being the assumption that both species are equally vulnerable to the sampling gear. Since green sturgeon concentrate in estuaries only during the summer and white sturgeon remain in estuaries year round, the temporal and spatial vulnerabilities of the two species are likely different. In addition, the estimate is based on a summer concentration of fish rather than a spawning population, and varying levels of tag recovery effort.

The status review examined the available time series of these population estimates qualitatively and also looked for statistically significant trends in the data. A qualitative examination of the time series suggests abundance has been stable, except for a substantial increase in the 2001 abundance estimate. The 2001 abundance estimate was 8,421 fish which is approximately four times higher than any previous estimate. Estimates for the years prior to 2001 range from several hundred to approximately 2,000 fish (see Figure 11 and Table 2 in NMFS 2002). The data suggest an increasing trend in green sturgeon abundance, but the increase was not statistically significant even with the large increase in the 2001 estimate. Although the sample sizes are small, the average size of green sturgeon tagged as part of this population estimation program in San Pablo was generally stable and showed no apparent trend over time.

NMFS' BRT identified several potential threats or risk factors for the southern green sturgeon DPS (NMFS, 2002). These include: harvest bycatch concerns; the concentration of spawning in the Sacramento River and the apparent small population size; loss of spawning habitat, lack of adequate population abundance data; potentially lethal water temperatures for larval green sturgeon; entrainment by water projects in the central valley; and the adverse effects of toxic materials and exotic species. Although the BRT expressed concerns about these potential risk factors, there is considerable uncertainty regarding their significance or effects on the southern green sturgeon DPS.

Spawning in this DPS does appear to be concentrated in the upper Sacramento River at present. Since the