

FRSCS Lower Fraser River White Sturgeon Monitoring and Assessment Program Stock Status Summary 2009 - Background

The Fraser River Sturgeon Conservation Society (FRSCS), a not-for-profit charitable organization founded in 1997, has a mandate to conserve and recover Fraser River white sturgeon stocks. This mandate is addressed through FRSCS initiatives to develop and implement credible, science-based research and monitoring programs, and the subsequent distribution of results to the authorities that manage white sturgeon and their habitat. In addition, the FRSCS distributes research results and associated program information to the general public on a regular basis by way of the FRSCS web site (www.frasersturgeon.com); associated educational material is also available at this site.

Why do we need to continue tagging and monitoring white sturgeon in the lower Fraser River?

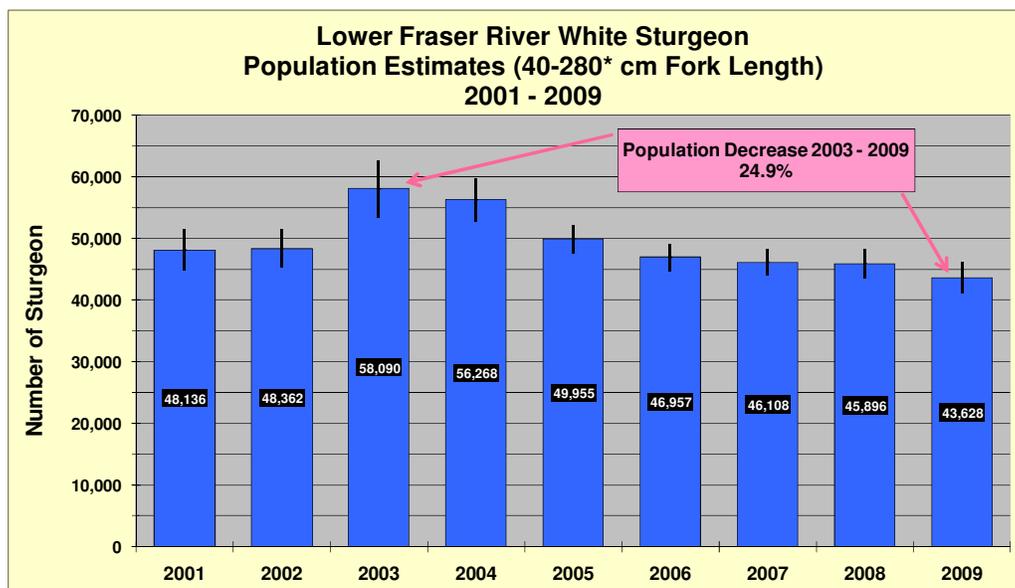
Canada has six genetically distinct stocks of white sturgeon, all of which are located in British Columbia. In 2003, all six stocks were designated “Endangered” by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In 2006, four of the six stocks were listed under the federal Species at Risk Act (SARA) and granted extended protections and support for stock-recovery initiatives. Two stocks (lower Fraser and middle Fraser) were not listed by SARA based on the “potential negative socio-economic impacts” that could result from SARA protective measures. In the absence of specific SARA-regulated protection and stock-recovery support, the FRSCS and associated partners have provided dedicated leadership and initiated stock-recovery projects for lower and middle Fraser River white sturgeon. The FRSCS monitoring and assessment program is a high-priority stock recovery action because it provides reliable information regarding abundance and stock status for Lower Fraser white sturgeon. Monitoring this population, and identifying size/age groups within the population that are declining or facing challenges, is a priority for fishery and fish population managers.

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The FRSCS’ Lower Fraser River White Sturgeon Monitoring and Assessment Program produces annual estimates of this population from a tagging-based, mark-recapture approach that works with volunteers to collect sampling data. Since April 2000, this program has relied on the in-kind efforts and contributions from angling guides, recreational, commercial, and Aboriginal fishermen, test fishery and enforcement personnel, the federal and provincial governments, post-secondary students, and various fishery monitors.

As of January 2009, the population estimate for white sturgeon (from 40-280 cm fork length) in the lower Fraser River was 43,628. This mean population estimate represents a further population decrease from the previous (2008) estimate, and a 24.9% decrease from the 2003 estimate (Figure 1).

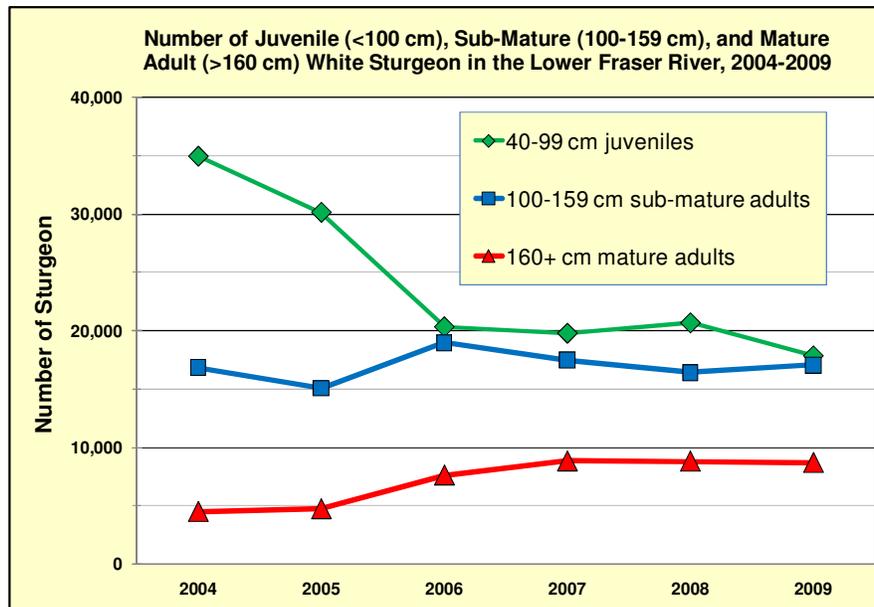
Figure 1. Population estimates of white sturgeon in the lower Fraser River from 2001 to 2009. The upper and lower extremes of the small vertical lines at the top of the large bars represent 95% confidence limits.



* The 2001-2004 estimates do not include fish over 239 cm fork length

A comparison of the change in population estimates by size group suggests the population decrease since 2003 has been most pronounced for the juvenile component of the population under 100 cm fork length (Figure 2). These estimates also suggest that, since 2001, the abundance of sturgeon over 160 cm fork length (sexually mature sturgeon) has increased and remained relatively stable since 2007.

Figure 2. Comparison of the number of juvenile sturgeon (40-99 cm), sub-mature sturgeon (100-159 cm), and mature adult sturgeon (>160 cm fork length) in the lower Fraser River, 2004-2009.



The monitoring and assessment program also provides important information regarding growth rates for lower Fraser River white sturgeon, by size group. Sturgeon growth is an indicator of food availability, which in itself can provide an indication the environmental health of the ecosystem where sturgeon reside. In addition, growth rates provide an indication of the health and condition of the sturgeon population. A comparison of average annual growth rates, determined from measurements obtained from individual tagged sturgeon that were subsequently recaptured and re-measured, suggests that annual growth rates for most size groups of white sturgeon were greater before 2005 than after 2005 (Figure 3). The timing of growth rate changes coincide with a stock decline of Pacific eulachon, a key prey item for lower Fraser River white sturgeon.

Figure 3. Comparison of average annual growth increments of white sturgeon, by 20-cm size groups, in the lower Fraser River during two time periods (2000-04 and 2005-09).

