FRASER RIVER STURGEON CONSERVATION SOCIETY

FRSCS Lower Fraser River White Sturgeon Monitoring and Assessment Program
Stock Status Summary 2010

Background

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, lower Fraser First Nations, the Fraser River Sturgeon Conservation Society and others have been taking steps to reduce the impact of fisheries on sturgeon, initiated stock-recovery efforts and monitor the status of lower and middle Fraser River white sturgeon.

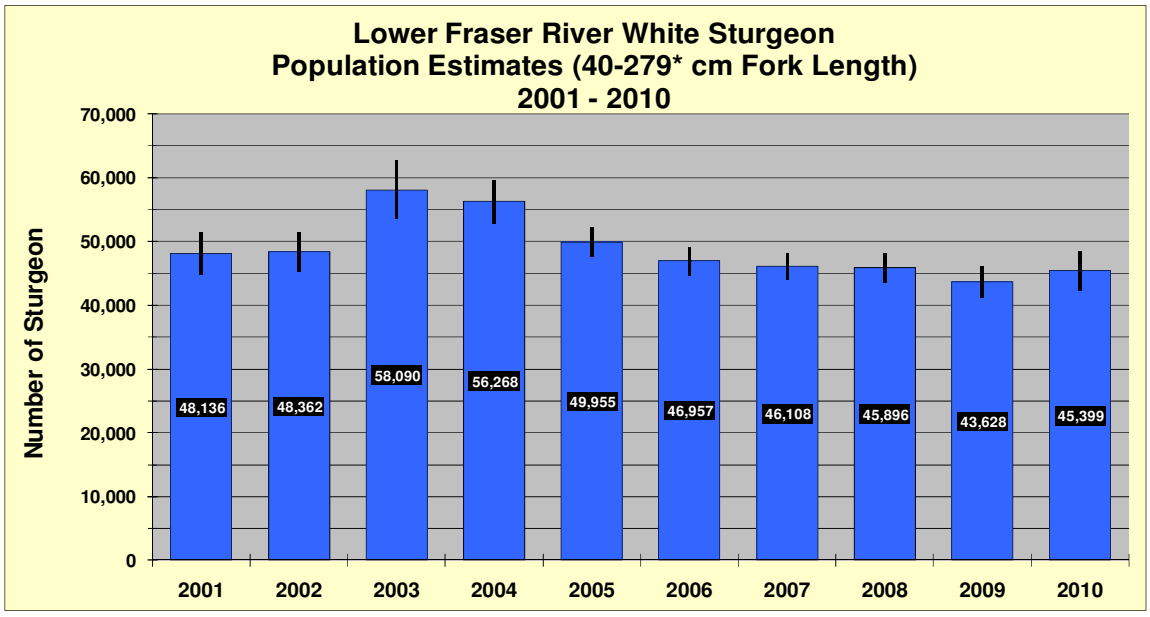
The following summary report was prepared by the FRSCS from data collected over the past 11 years. The FRSCS, a not-for-profit charitable organization founded in 1997, has a mandate to conserve and recover Fraser River white sturgeon stocks. This mandate is addressed through initiatives to develop and 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 via the FRSCS web site (www.fraserstrgeon.com). Educational material regarding white sturgeon is also available at this site.

Lower Fraser River White Sturgeon Stock Status 2010

The 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 fishers, salmon test fisheries and enforcement personnel, the federal and provincial governments, post-secondary students, and various fishery monitors.

As of January 2010, the population estimate for white sturgeon (from 40-279 cm fork length) in the lower Fraser River was 45,399. The 2010 population estimate represents a small increase from the 2009 estimate, but this abundance level is still 21.8% lower than the 2003 estimate (Figure 1).

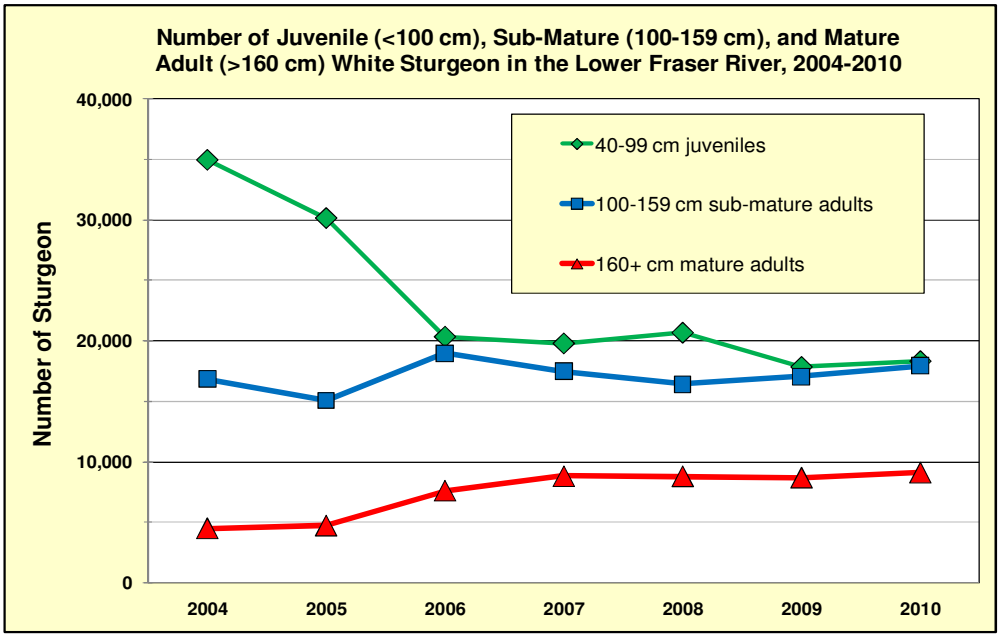
Figure 1. Population estimates of white sturgeon in the lower Fraser River from 2001 to 2010. The upper and lower extremes of the small vertical lines at the top of the large bars represent 95% confidence limits.



* 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, 2004-2010.



The monitoring and assessment program also provides important information regarding growth rates for lower Fraser River white sturgeon, by size group. Sturgeon growth is in part 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 drop in growth rate coincided with the decline in Fraser eulachon and chum salmon returns. The notable increase in sturgeon growth rates in 2010, for all size groups, is likely related to abundant pink salmon returns in 2009 and the record sockeye return in 2010.

Figure 3. Comparison of average annual growth increments of white sturgeon, by 20-cm size groups, in the lower Fraser River during three time periods: 2000-04 (averaged), 2005-09 (averaged), and 2010.