

## 6.0 IMPLEMENTATION SCHEDULE

The following schedule describes a list of activities for implementation consistent with the goals and objectives of this plan. Actual implementation schedules will be contingent upon the resources available for plan implementation. Evolving knowledge, economic, social, and legal considerations will guide decisions on proceeding with any of the various elements in the implementation schedule. More specific description of an implementation schedule will be included in the Implementation Action Plan identified in measure 5.5.10(2) of this recovery plan.

### **6.1.1 Short Term (within 5 years)**

**Objective: Assess population status and act to prevent further reductions in white sturgeon distribution, numbers, and genetic diversity within the current geographic range.**

1. *Evaluate and eliminate where feasible direct anthropogenic sources of adult mortality.*
  - 1a. Eliminate non-research and non-conservation culture capture throughout geographic range. [5.5.1(1), 5.5.1(2)]
  - 1b. Identify and reduce sources of direct dam and other industrial related mortality. [5.5.2(1), 5.5.2(2)]
2. *Increase early life stage survival through improved water and habitat management*
  - 2a. Initiate adaptive water storage/release management plan within recovery areas. [5.5.4(1), 5.5.4(2), 5.5.4(3), 5.5.4(4), 5.5.4(5)]
  - 2b. Initiate water quality improvement plan within recovery areas (temperature, turbidity, and TGP). [5.5.5(1), 5.5.5(2), 5.5.5(3), 5.5.7(6)]
  - 2c. Initiate habitat restoration plan and undertake select habitat improvements (minimum of 1 project/recovery area). [5.5.7(2), 5.5.8(10), 5.5.8 (6)]
  - 2d. Initiate studies to clarify the sources and level of predation mortality. [5.5.8(10)]
  - 2e. Identify sources and impacts of predation mortality. [5.5.8(10), 5.5.7(5)]
  - 2f. Initiate investigations of contaminant effects on sturgeon. [5.5.6(1), 5.5.6(2), 5.5.6(3)]
3. *Develop/implement pilot fish cultural facility(ies) to maintain adult population abundance and genetic diversity.*
  - 3a. Culture and release sufficient hatchery reproduced juveniles/families to meet minimum conservation target (i.e., maintain existing population size) within each recovery area. [5.5.3(1), 5.5.3(3)]
  - 3b. Provide adequate numbers of cultured juvenile sturgeon to support research plans. [5.5.3(2)]
  - 3c. Investigate feasibility of experimental culture/fail safe hatchery facility for US portion of the transboundary recovery area. [5.5.3(7), 5.5.3(9)]
4. *Track population status and survival rate within geographic area.*

- 4a. Identify methods and establish population monitoring program to track short term targets 1-3 within recovery areas. [5.5.3(6), 5.5.3(5), 5.5.8(7)]

### **6.1.2 Medium Term (within 10 years)**

**Objective: Determine survival limitations (bottlenecks) for remaining supportable populations and establish feasible response measures to reduce or eliminate limitations.**

#### ***1. Undertake research designed to define survival limitations***

- 1a. Provide for peer review of research plans. [5.5.10(1)]
- 1b. Research plan completed and recruitment limitations identified for each recovery areas. [5.5.10(1), 5.5.8(9)]
- 1c. Minimize significant sources of direct dam and other industrial related mortality. [5.5.6(7), 5.5.6(9)]

#### ***2. Increase survival through improved water, habitat, and fisheries management***

- 2a. Complete preliminary adaptive water management experiments within recovery areas. [5.5.4(3), 5.5.4 (1)]
- 2b. Complete feasible water quality improvements within recovery areas. [5.5.5(1), 5.5.5(2), 5.5.5(3)]
- 2c. Complete feasible habitat improvements for each recovery area. [5.5.7(2)]
- 2d. If predation is identified as a potential bottleneck, implement measures to reduce predation, which could include habitat improvements. [5.5.8(7)]
- 2e. Employ political and regulatory means to reduce or eliminate new exotic species introductions, and implement fisheries management measures to minimize impacts of predatory game fish on white sturgeon.

#### ***3. Evaluate the feasibility of a conservation culture & release program to address recruitment failure.***

- 3a. Complete full scale conservation culture plan for recovery areas including locations (assess land acquisition and water suitability), permitting, breeding/genetic plan, supplementation strategy etc. [5.5.3(1), 5.5.3(6), 5.5.3(9)]
- 3b. Maintain pilot conservation culture operations to meet conservation targets (increase population to minimum sustainable levels while maintaining genetic diversity) within recovery areas. [5.5.3(4), 5.5.3(7), 5.5.3(8), 5.5.8(8)]

#### ***4. Track habitat conditions and population status within geographic range.***

- 4a. Maintain monitoring program to track habitat conditions and population structure within recovery areas. [5.5.6(5), 5.5.7(1), 5.5.8(1), 5.5.8(3), 5.5.8(4), 5.5.8(9), 5.5.8(2)]
- 4b. Monitor indices (juvenile abundance) which demonstrate significant probability of population persistence throughout geographic range. [5.5.8(4), 5.5.8(5)]

**6.1.3 Long Term (within 50 years)**

**Objective: Re-establish natural population abundance levels, age structure, and beneficial uses through self-sustaining recruitment in two or more recovery areas.**

- 1. *Maintain adequate survival through optimal water and habitat management programs***
  - 1a. Provide and monitor results of 10 years of implementation of best-case water management regime. [5.5.4(3), 5.5.4(4)]
- 2. *Establish stable population structure for more than one recovery area.***
  - 2a. Ensure juvenile abundance adequate to support an adult population of 2,500/recovery area. (i.e., 5,000 - 7,500 adults/geographic range assuming 2 or more recovery areas). [5.5.3(1)]
  - 2b. Provide an average rate of recruitment that exceeds that required for population replacement. [5.5.3(1)]
  - 2c. Ensure adequate sexually mature adults are present to meet conservation targets within recovery areas. [5.5.3(10)]
  - 2d. Develop management plans for limited harvesting when adult population size, population growth rates, and age structure indicate that population recovery objectives will be achieved. [5.5.1(3)]
- 3. *Complete establishment of broad fail-safe population measures:***
  - 3a. Assess feasibility and acceptability of expanding the geographic range and presence of supportable recovery area populations to provide further fail-safe population measures. [5.5.3(3)]
  - 3b. Implement fail-safe population(s) program (assume 1 fail-safe population in Canada and 1 in the USA). [5.5.3(3)]
- 4. *Maintain and/or expand conservation culture and release program, as required.***
  - 4a. Necessary culture facility(ies) constructed and operational to meet conservation targets within recovery areas (until such time as natural recruitment is sufficient to maintain population). [5.5.3(8), 5.5.3(7)]
- 5. *Track habitat conditions and population status within geographic range.***
  - 5a. Maintain monitoring program to track habitat conditions and population structure within recovery areas. [5.5.6(5), 5.5.8(1), 5.5.8(2), 5.5.8(3)]
  - 5b. Monitor indices (juvenile abundance) which demonstrate significant probability of population persistence throughout geographic range. [5.5.3(6), 5.5.8(5)]