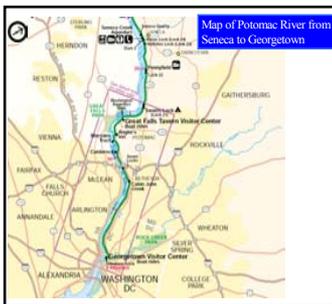


# 2002 Habitat Assessment of the Potomac River: Little Falls to Seneca Pool

Steve Schreiner, Versar, Inc., and Rich McLean, Maryland DNR

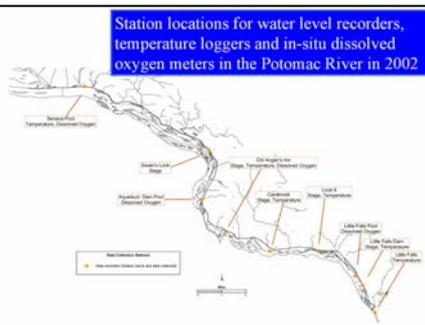
## INITIAL OBJECTIVES

- ❖ **SHORT-TERM:** Estimate the amount and quality of biotic habitat available at different flow levels, particularly as it relates to the current minimum flow-by requirement
- ❖ **LONG-TERM:** Determine what instream flows are required to provide adequate habitat and to prevent a reduction of any representative important species beyond levels from which it cannot recover and re-colonize the area following a drought event



## Introduction

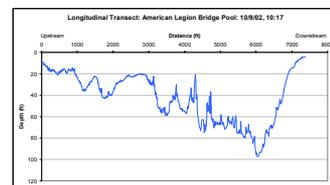
- ❖ Drought of 2002 presented opportunity to conduct physical habitat assessment under low flows:
  - Macrohabitat map of qualitative riverine habitats
  - Microhabitat surveys of depth/velocity
  - Water level changes in several areas
  - Water quality changes (temp, D.O.)
  - Physical habitat assessment to serve as basic information for any future assessment of environmental flow-by
  - Study reach defined as area from head of tide at Chain Bridge to Seneca pool, a distance of about 18 river miles



Minimum Dissolved Oxygen Levels in the Potomac River Study Area, Measured Between Aug. 20-30, 2002, and Corresponding Flows at Little Falls Gage

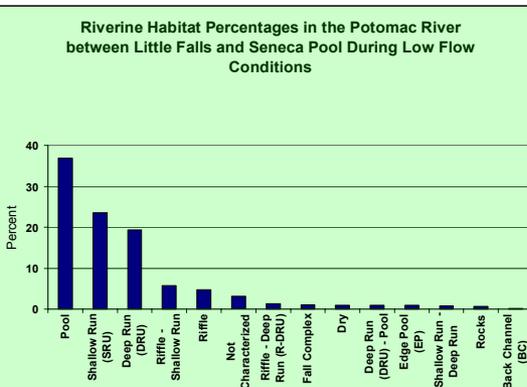
Station	Date, Time	Dissolved Oxygen, mg/l (% Sat.)	Flow, cfs
Little Falls Pool	8/28/02, 0120	4.9 (61%)	892
Old Angler's Inn Pool	8/27/02, 0420	7.7 (98%)	354
Aqueduct Dam	8/26/02, 2140	7 (88%)	413
Seneca Pool	8/30/02, 0550	5 (59%)	1890

Longitudinal transect in the Potomac River in the vicinity of the American Legion Bridge showing depth as recorded by sonar. Transect location shown on map section.



## HABITAT SURVEYS

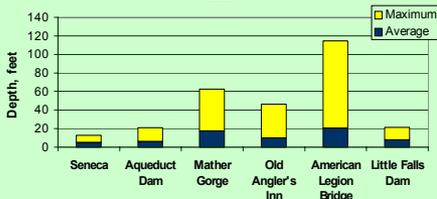
- ❖ **Goal:** map qualitative habitat types in the study area under low-flow conditions (< 1400 cfs or 900 mgd) and quantify depth/velocity
- ❖ Similar to a 2001 survey conducted about 80 to 100 miles upriver near Dams 4 & 5
- ❖ Field crews canoed, waded, or walked shoreline of study reach, recording habitat
- ❖ Surveys from August 13 to October 10, flows 300-1400 cfs
- ❖ Potential uses: provide base map of habitat distribution for future statistical-based sampling



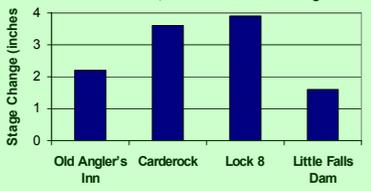
## SUMMARY

- ❖ During 2002 low flows, water level changed about 1.5 to 4 inches in various locations, over a 200 mgd (310 cfs) range
- ❖ Highest water temperatures (max > 31 °C or 88 °F) occurred at flows more than twice current flowby
- ❖ Lowest dissolved oxygen at or slightly below 5 mg/l, but did not coincide with lowest observed flows
- ❖ Macrohabitat surveys showed predominance of pool habitat (37% of area), shallow run (24%) and deep run (19%)
- ❖ Microhabitat surveys showed some very deep pools: Legion bridge 20' avg., 94' max; Mather Gorge 23' avg., 45' max; and Angler's 22' avg., 36' max
- ❖ Aqueduct Dam and Seneca pools relatively shallow, averaging 15' and 8'
- ❖ Full report available at: [esm.versar.com/pprp/potomac/2002report.htm](http://esm.versar.com/pprp/potomac/2002report.htm)
- ❖ Next Steps:
  - Convene a workshop including regional biologists and perhaps others from across the nation that have expertise on the possible impacted species and guilds. The workshop will be used to determine the range of tolerance for targeted species and guilds found in the low flow study area. The Interstate Commission on the Potomac River Basin, the Nature Conservancy, and the Corps of Engineers will take the lead on this effort. All others are invited to participate.

Depth of Major Pool Areas in the Potomac River During Low Flow Conditions, from Seneca Pool to Little Falls Dam



Change in River Stage During Low Flow Conditions in the Potomac River, Between 300 and 500 mgd



Overview map of Potomac River macrohabitat from Seneca Pool to Chain Bridge

