

Instream Protected Flows for the Segments of the Souhegan River Designated as Protected Pursuant to RSA 483:15, XIII

Table 1 - Attachment - Definitions

Bioperiod - biological periods - time segments within a year having biological significance for survival or propagation of species.

cfs - cubic feet per second - a measure of flow - one cubic foot is 7.481 gallons and one cfs is equivalent to almost 450 gallons per minute.

cfs_m - cubic feet per second per square mile of watershed - a rate of flow - used to determine stream flow in cfs at ungaged locations by multiplying the drainage area of the ungaged location and cfs_m. Cfs_m is derived from gages with known drainage areas.

GRAF - General Reference Adult Fish - a combination of the most common species representing the majority of fish species in the Souhegan Target Fish Community.

IPOOCR - acronym for the instream flow protected entities listed in RSA 483 (Instream Public Use, Outstanding Characteristic, and Resources).

PISF - Protected Instream Flows - described as **Common, Critical and Rare** flow levels that are to be protected from overly long durations that would result in catastrophic conditions.

Flow levels, flow durations, flow condition, and relief flow definitions

Flow levels - common, critical and rare flow magnitudes - assigned to a bioperiod and associated with durations

Common Flow - the flow corresponding to the highest habitat magnitude above which the frequency of occurrence begins to decline significantly with incremental increase in habitat magnitude. Common flow magnitudes represent near optimal habitat availability conditions that are exceeded during approximately 45% of the bioperiod.

Critical Flow - the flow corresponding to the second to the lowest habitat magnitude for which the frequency of occurrence increases significantly with incremental increase in habitat magnitude. Critical flow magnitudes describe less habitat availability than that provided by the common flow, but this habitat magnitude is not unusual. Critical flows represent habitat availability conditions that are exceeded during approximately 65% to 85% of the bioperiod.

Rare Flow - the flow corresponding to the lowest of habitat magnitudes for which the frequency of occurrence increases significantly with incremental increase in habitat magnitude. Rare flow habitat availability is severely reduced and very uncommon. Rare flow represents habitat availability that is exceeded during more than 90% of the bioperiod.

Durations - allowable or catastrophic - limits on the consecutive days when flow is below a protected flow magnitude. Flow durations are reset at the beginning of each new bioperiod.

Allowable - duration occurring in an average year. Flow below protected flow levels may often continue for this duration.

Catastrophic - duration occurring once in ten years. Flows below protected levels for catastrophic durations initiate management activities pursuant to a Water Management Plan.

Conditions - the result of stream flow relative to protected flow magnitude and duration.

Typical - condition when flow is within the desirable range. Flow has not exceeded allowable duration for any protected flow level.

Persistent - condition when flow is below a protected magnitude for more than the allowable duration, but less than the catastrophic duration. Repeated persistent conditions become a catastrophic condition.

Catastrophic - condition when catastrophic durations are exceeded for any protected flow level or if a persistent condition occurs repeatedly. Repeated persistent conditions become a catastrophic condition if occurring either 1) for three consecutive bioperiods, or 2) during the same bioperiod over three consecutive years. A catastrophic condition initiates management activities pursuant to a Water Management Plan.

Relief flows - those flows that may provide relief from catastrophic conditions - relief flows require flows for a duration of two days at or above the next higher protected flow level. Relief flows reset the duration clock to zero for the protected flow level exceeded. Relief flows may be natural or may be artificially created by releases from storage.