

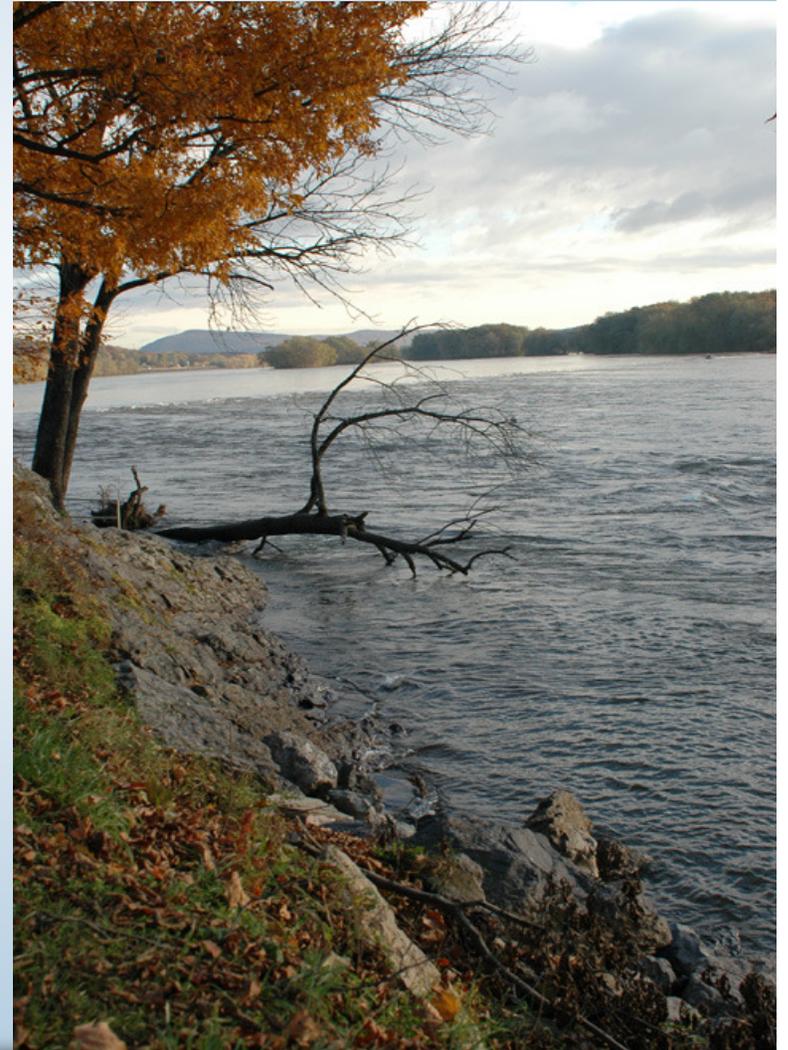
SRBC Low Flow Protection Policy Implementation

May 22, 2013

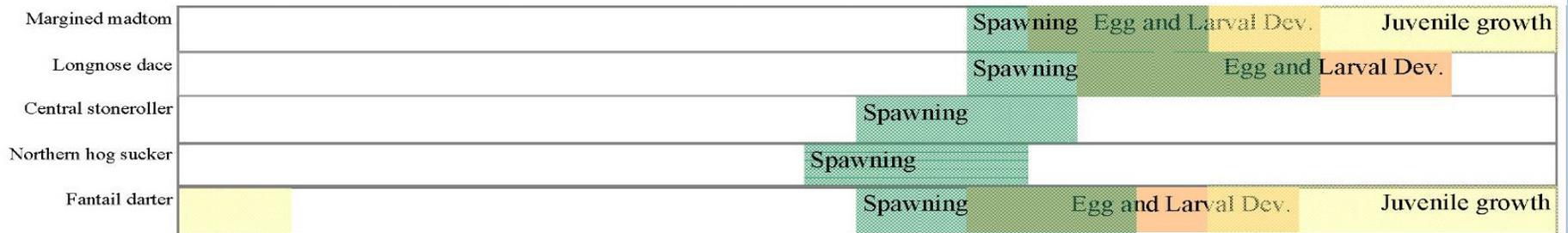
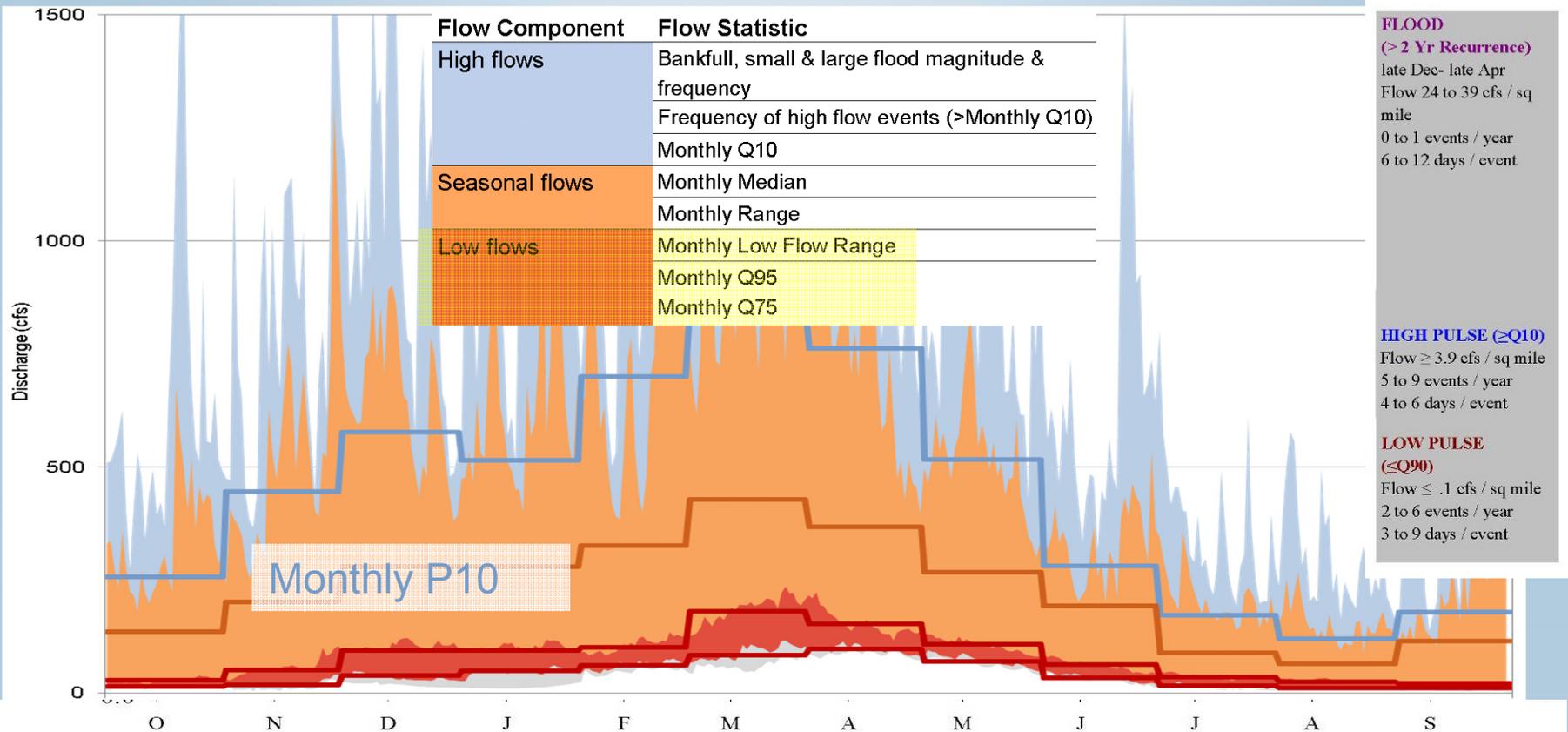


TNC Ecosystem Flows Study

- Collaboration between TNC, SRBC & USACE under Section 729 of WRDA
- Goal: Determine ecological flow needs for Susquehanna River & tributaries
- Flow goals to guide withdrawal approval conditions, releases from storage during low flow periods & CU mitigation planning



Ecosystem Flow Components & Statistics



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Key Changes from 2003-01:

- Aquatic Resource Classes Based on DA
- Monthly Passbys (old policy = static annual)
- Monthly exceedence values determine necessity of passbys and passby values (old policy = 10% Q7-10 was *de minimis* threshold; 15, 20, 25% ADF passby based on stream designation)

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Table 1. Aquatic Resource Class Criteria*

ARC	Description	Drainage Area (square miles)	Total Stream Length (miles)	Percent Composition
1	Headwaters	<=10	40,421	81
2	Creeks	>10 <50	4,357	10
3	Small Rivers	>=50 <200	2,139	4
4	Medium Tributary Rivers	>=200 <1,000	1,300	3
5	Medium Mainstem Rivers	>=1,000 <5,000	467	1
6	Large Rivers	>=5,000	582	1

* For planning purposes, maps showing generalized ARC stream designations in the Susquehanna River Basin and its six major hydrologic subbasins are provided as Attachments C1 through C7.

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Table 2. De minimis Withdrawal Thresholds by Aquatic Resource Class

ARC 1	ARC 2	ARC 3	ARC 4	ARC 5	ARC 6
None	5% monthly P95	5% monthly P95	5% monthly P95	10% monthly P95	10% monthly P95

De minimis withdrawals:

too low in magnitude to
have any appreciable effect
on instream flows

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Table 3. Passby Flow/Conservation Release Schedule

ARC 1	ARC 2	ARC 3	ARC 4	ARC 5	ARC 6
monthly P70	monthly P75	monthly P80	monthly P85	monthly P90	monthly P95

Exceedence Flows:

- P95 represents a low flow, exceeded 95% of days in record
- P5 represents a high flow that has been exceeded only 5% of all days in flow record
- Higher Pxx value = lower flow

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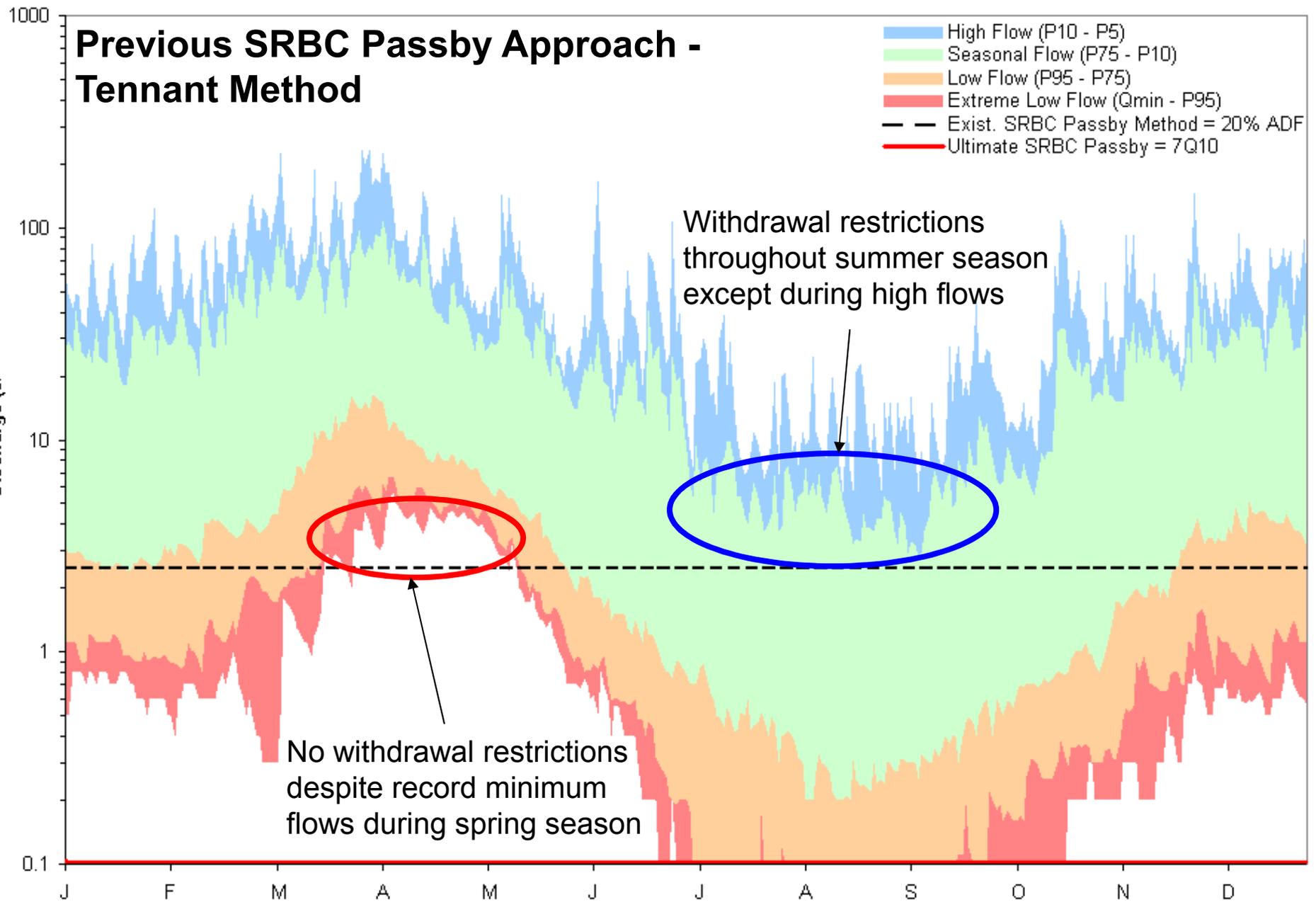
Withdrawal Limits:

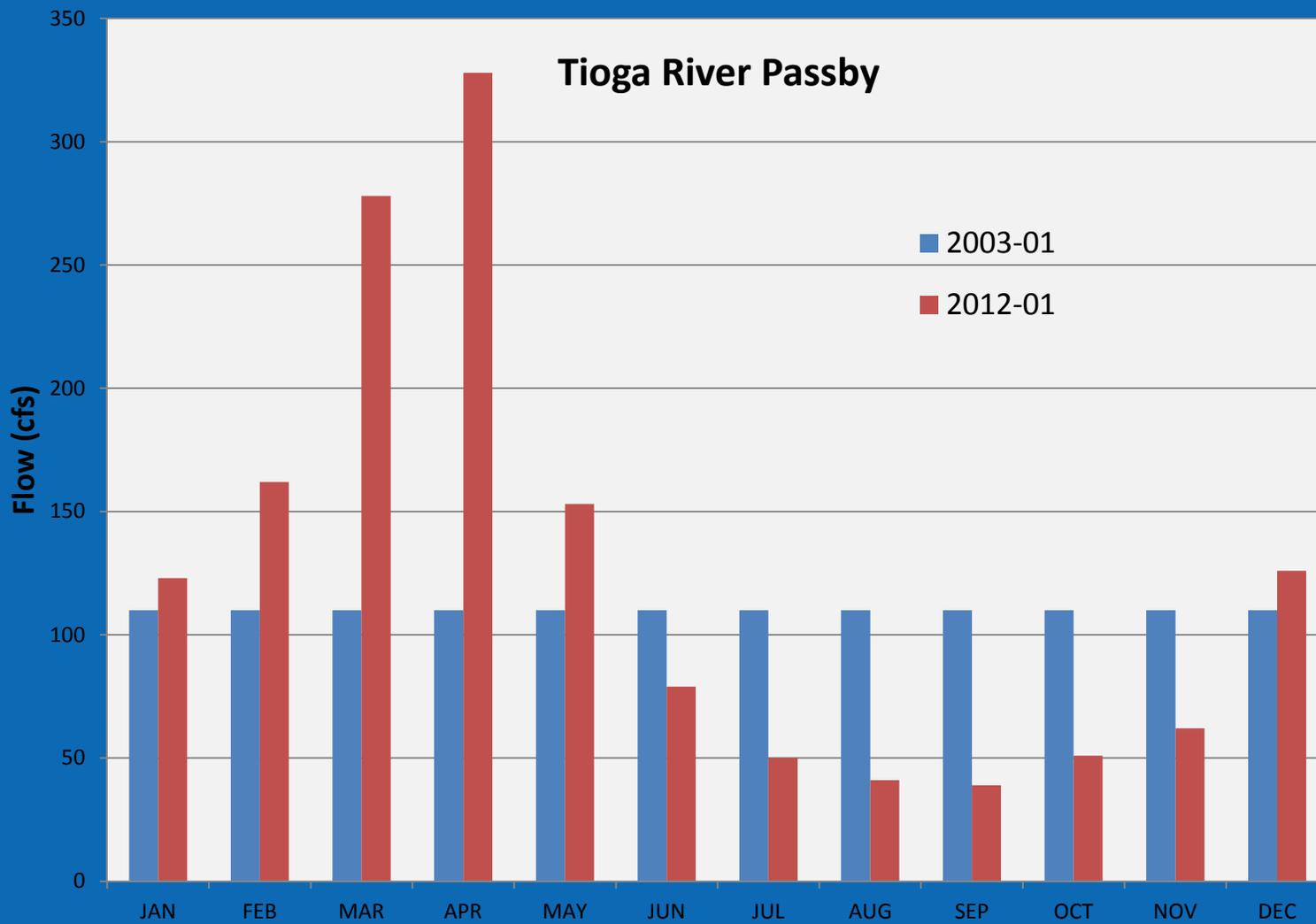
“In order to preserve natural flow variability and meet seasonal flow protection objectives, **the Commission may limit a proposed withdrawal rate to a percentage of the monthly passby flow or monthly median flow. This condition may be imposed when the proposed withdrawal has the potential to affect seasonal flow variability and/or result in unacceptable levels of hydrologic alteration.** In establishing such conditions, the Commission will consider the ecosystem flow recommendations contained in TNC’s “Ecosystem Flow Recommendations for the Susquehanna River Basin” (2010) or other related environmental flow protection scientific studies.”

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Special Cases and Conditions:

- Seasonal – to simplify operations
- Exceptional Quality – higher monthly flow values for traditional low flow months
- Impaired Waters – raise threshold where passbys become necessary, lower passbys
- Agency Coordination – case-by-case can deviate from guidance
- Reservation – reserve right to increase passby flow where sensitive resources or water quality may be impacted





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