



South Carolina Department of Health and Environmental Control

Safe Yield Workgroup

Meeting #1



Agenda

10:00-Welcome

10:10-Overview of the Goal of Meetings

10:20-Workgroup Introductions

10:35-Overview of other Southeastern States

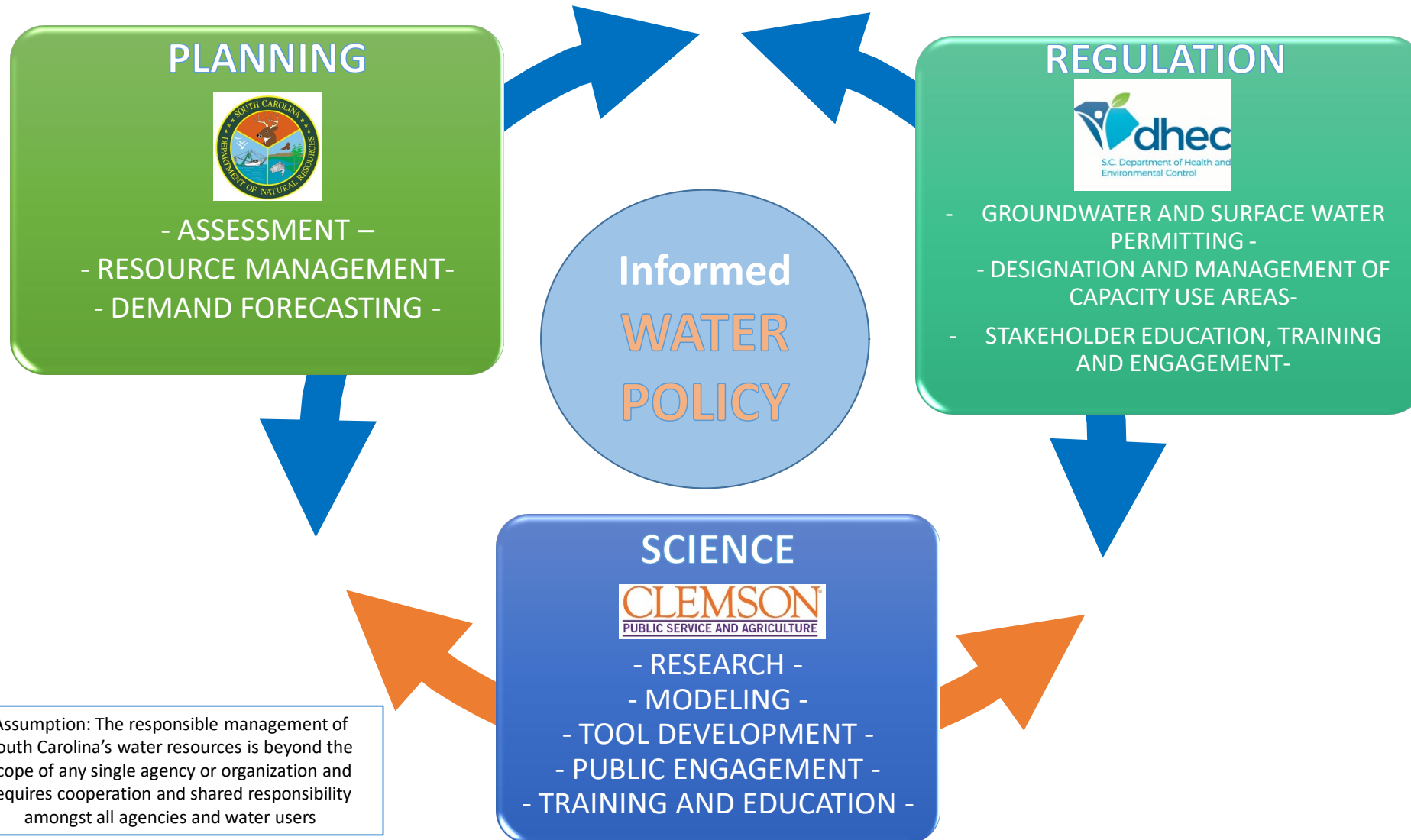
10:50-Law and Regulation Summary and Current Safe Yield Calculation

11:05-Examples of Alternative Calculations

11:15-Discussion

11:50-Meeting #2 Agenda

11:55-Closing Remarks





PLANNING



- ASSESSMENT -
- RESOURCE MANAGEMENT -
- DEMAND FORECASTING -



GreenvilleWater

REGULATION



- GROUNDWATER AND SURFACE WATER PERMITTING -
- DESIGNATION AND MANAGEMENT OF CAPACITY USE AREAS -
- STAKEHOLDER EDUCATION, TRAINING AND ENGAGEMENT -

Informed WATER POLICY



SCIENCE



- RESEARCH -
- MODELING -
- TOOL DEVELOPMENT -
- PUBLIC ENGAGEMENT -
- TRAINING AND EDUCATION -



US Army Corps of Engineers



SOUTH CAROLINA GROUND WATER ASSOCIATION



Workgroup Topic



Permit Duration

Exemptions

Hierarchy of Use

Inter-basin
Transfers

Safe Yield Calculation in R61 -119

Grandfathered
Permits

Minimum Instream Flow Values

Public Participation
Requirements

Goal

To evaluate how safe yield is currently calculated and to examine possible alternative calculations that the Department should consider.

* Any changes to the Safe Yield Calculation would require a regulation change (Separate Process)

Workgroup Timeline

January 21	Workgroup Kick Off
February 18	Evaluation of Alternative Calculations
March 17	Evaluation of Alternative Calculations
April 14	Discussion-Wrap Up
May 15	Summary Report

Introductions

Who are you?

What organization are you with?

Why are you here?



Surface Water Permitting Requirements in the Southeast

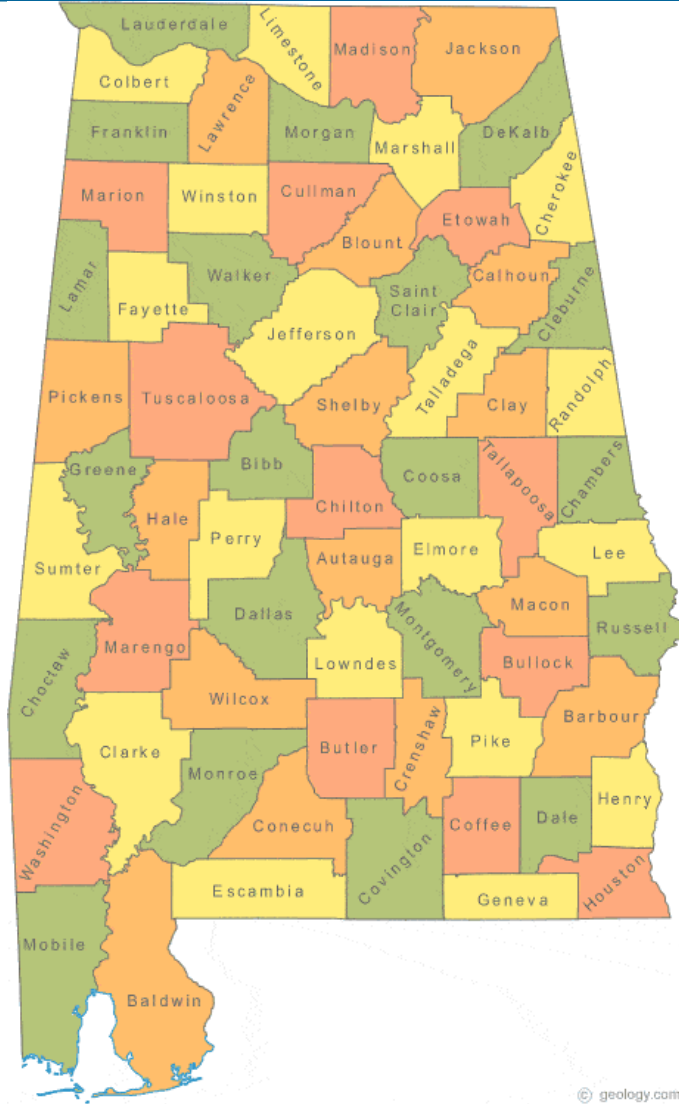
South Carolina Department of Health and Environmental Control
Healthy People. Healthy Communities.



States Researched

- Alabama
- Georgia
- Kentucky
- Maryland
- Mississippi
- North Carolina
- Tennessee
- Virginia

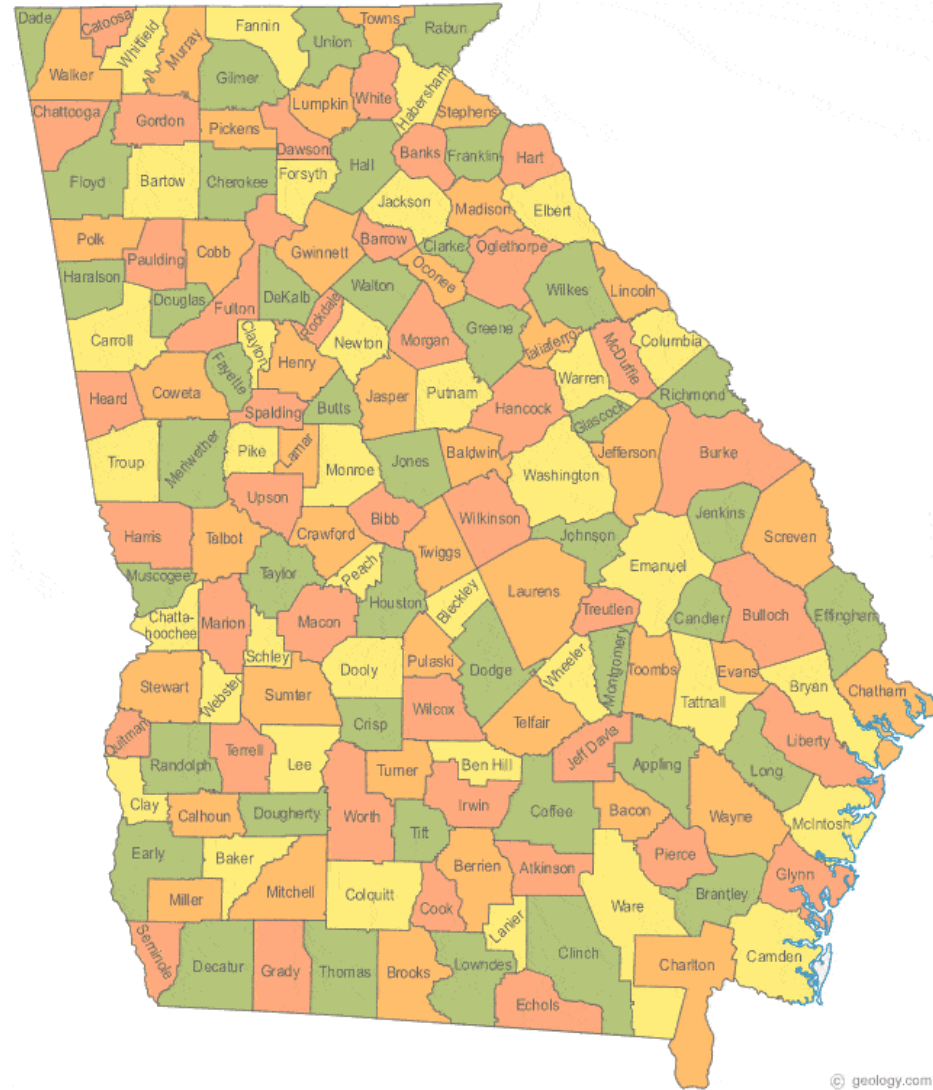
Alabama



Alabama

- Based on user having capacity of at least 100,000 gal/day to register with Office of Water resources
- Must submit a declaration of beneficial use
- No fees
- 10 year permit duration
- Annual water use reporting

Georgia



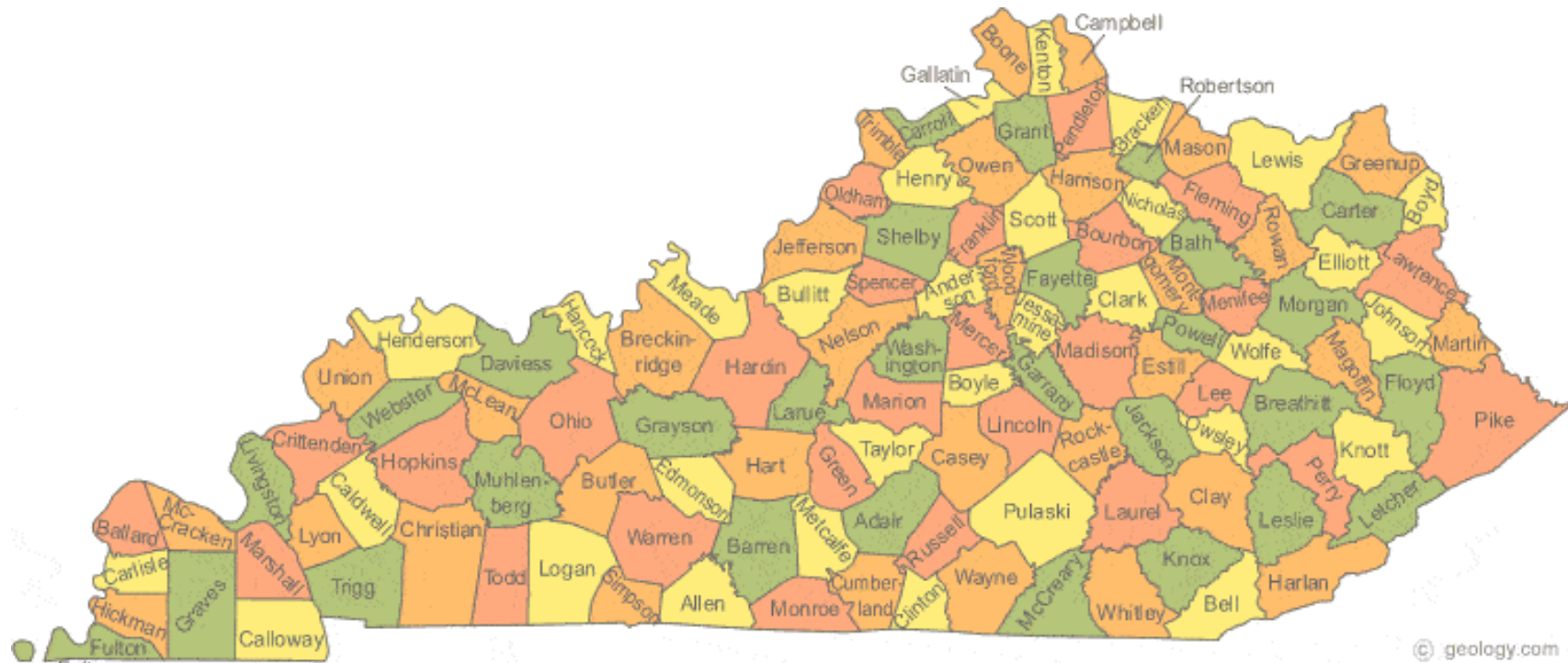
Georgia

- MIF: 7Q10 or inflow, whichever is lower
- “non-depletable flow”: that instream flow consisting of the 7Q10 flow plus an additional flow needed to ensure the availability of water to downstream users...is normally calculated by adding the 7Q10 flow to the downstream withdrawal, using the drainage area ratio method
- \$50 fee for car washing facilities; otherwise no fee
- 10 year permit duration
- No limit on ag except 25 years in Flint Basin
- Permit for those using more than 100,000 gal/day (monthly average)
- Annual reporting

Georgia (Cont.)

- Monthly 7Q10 Min Flow
 - Required to release lesser of monthly 7Q10 or inflow into the reservoir
- Site-Specific Instream Flow Study
 - Applicant may perform instream flow study to determine minimum flow conditions that must be met for habitat protection
- Mean Annual Flow
 - 30% Mean Annual Average Flow (direct withdrawal) – required to allow lesser of 30% of mean annual flow of stream or inflow to pass intake
 - 30/60/40% MAF (water supply res) – required to release from reservoir the lesser of 30% of MAF or inflow during July -Nov, 60% during Jan – Apr, and 40% during May, June, Dec

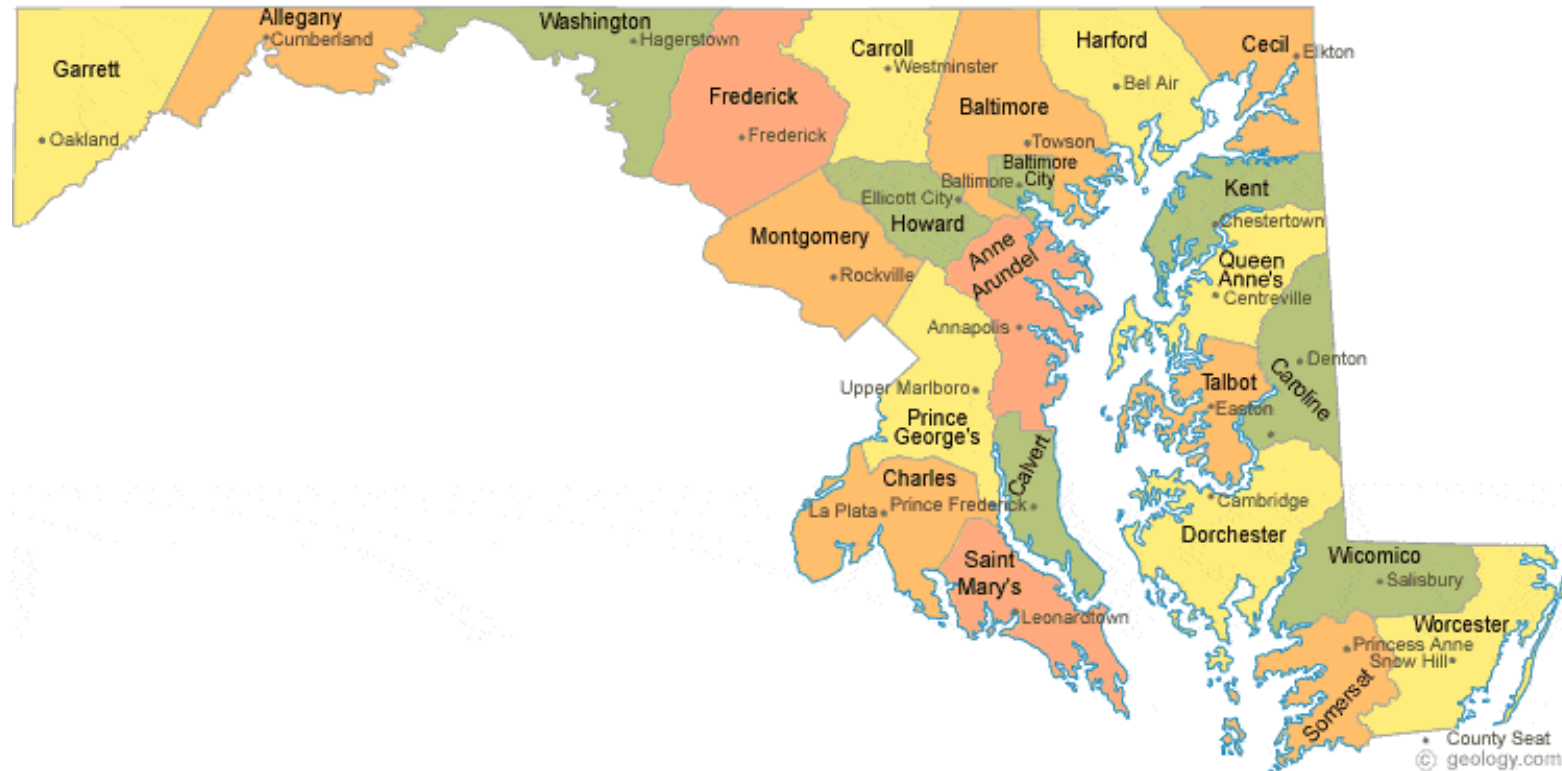
Kentucky



Kentucky

- Permit using more than 10,000 gal/day, none for ag
- 7Q10 is default MIF, but will have greater flow restriction based on downstream users and aquatic habitat
- For permit limit: average monthly flow for each month, then 10% of the lowest month must be available
- No fees through the Energy and Environment Cabinet, but the Kentucky River Authority requires a fee of \$0.028/1,000 gallons of water withdrawn for Tier 1 (net withdrawal) and \$0.22/1,000 gallons for Tier 2 for those withdrawing from the Kentucky River Drainage Basin
- No permit duration

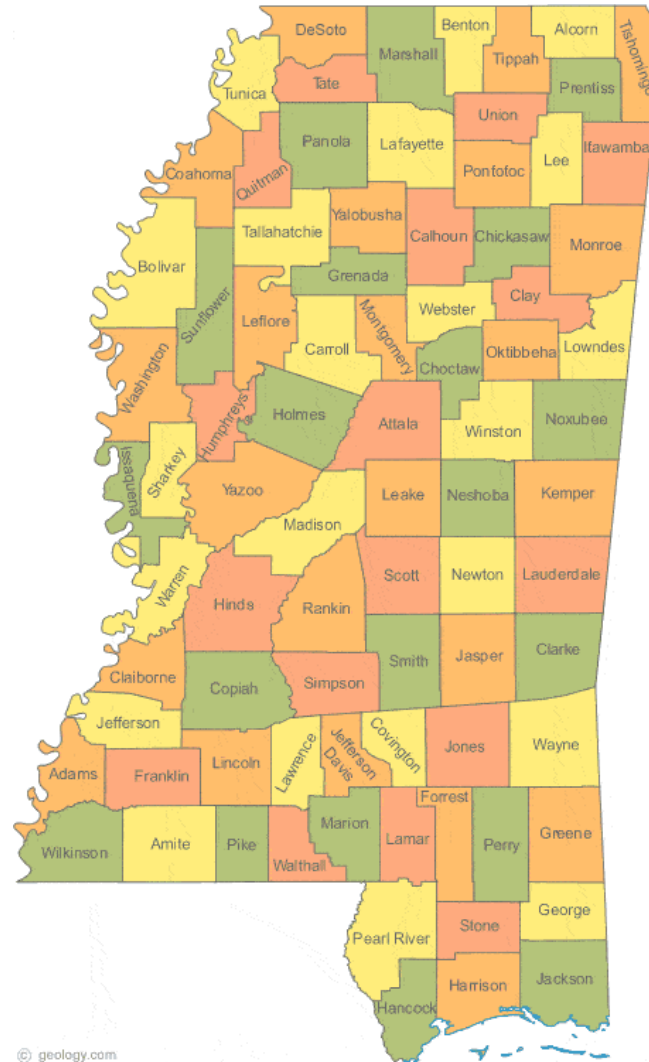
Maryland



Maryland

- All have permits except ag < 10,000 gal/day
- Permits have MIFs that have been calculated for the stretch of water they are on
- Ag- use single flow by value – just the 7Q10
- No fees
- Permit duration max: 12 years, subject to review every 3 years
- New non ag, use “Maryland Method” -2-4 values, are generally the 85th percentile flow at point of withdrawal

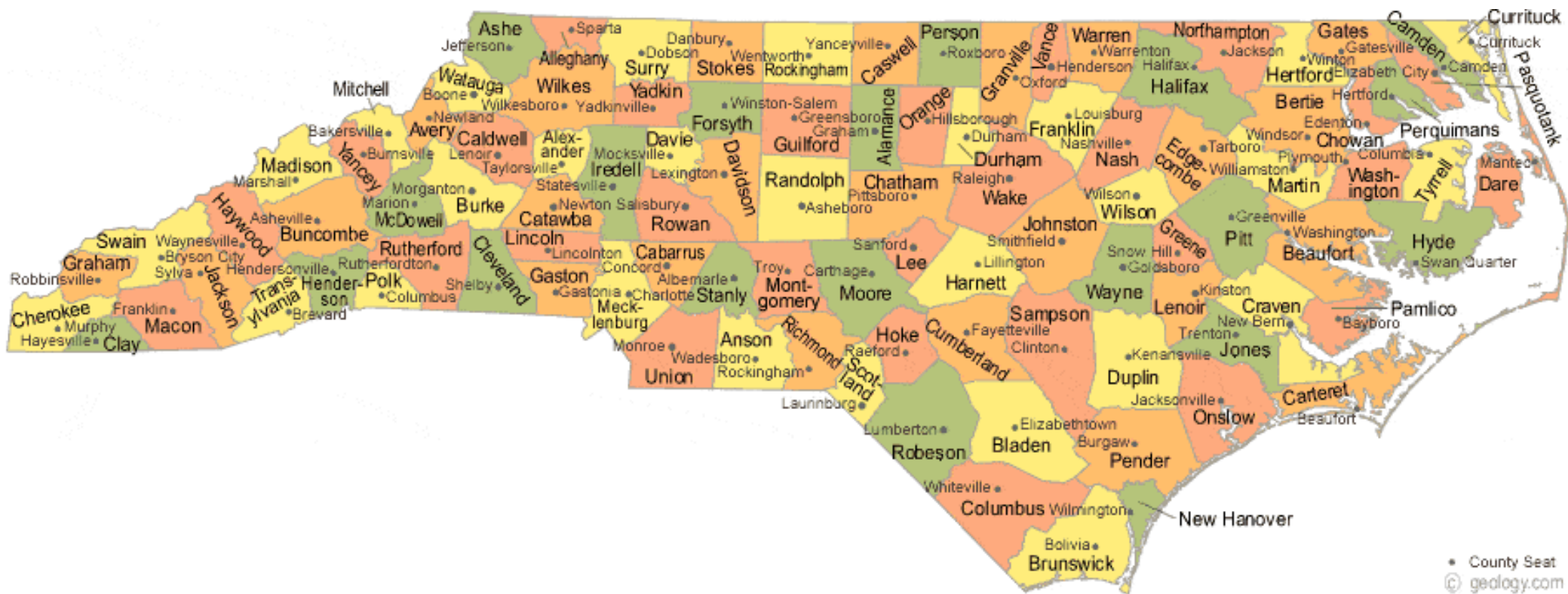
Mississippi



Mississippi

- 7Q10 is threshold for MIF
- Everything in excess of 7Q10 is available for permitting, but the state has discretion
- Cannot withdraw water that will cause it to fall below established MIF
- \$10 fees per application
- 10 year permit duration

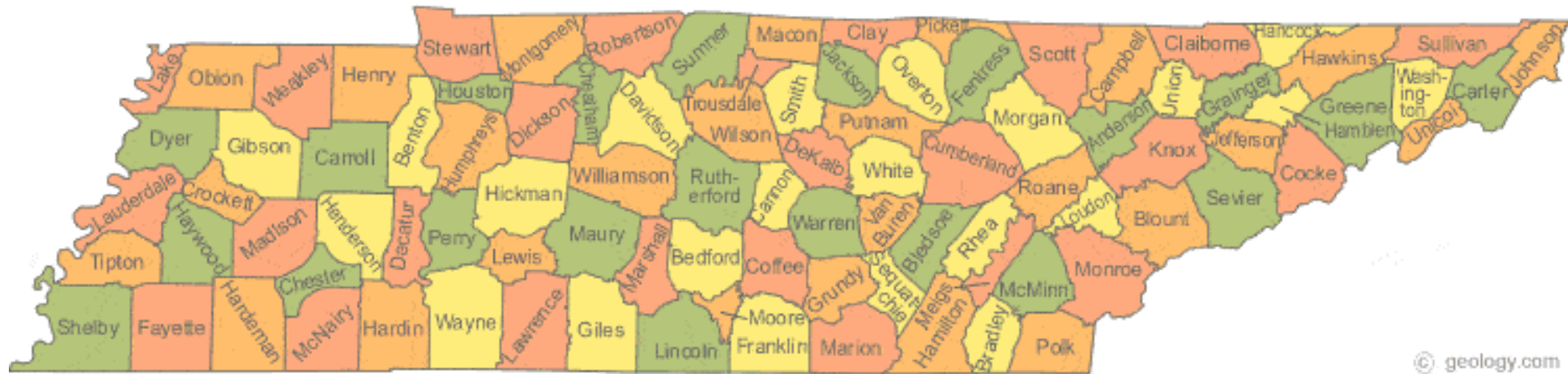
North Carolina



North Carolina

- No surface water program, but supposedly withdrawals greater than 20% of annual 7Q10 require site -specific instream flow -study
- New Non -Ag- \$50
- Non -Ag >100,000 gal/day
- Non -Ag transfers > 100,000 gal/day between basins
- Ag > 1,000,000 gal/day
- Ag transfers >1,000,000 gal/day between basins
- Must be updated every 5 years

Tennessee



Tennessee

- Only registrations for non -ag over 10,000 gal/day
- Unless an interbasin transfer, no withdrawal limits
- No fee
- One year registration duration
- Annual water use reporting

Virginia

- All need permits if using over 10,000 gal/day if non - tidal waters, over 2 million gal/day if tidal water
- Program places max daily, month, and annual limits on withdrawal volumes with site-specific MIF requirements
- Application fees range from \$10,000-\$35,000 (none for ag)
- Ag users report if using over 1 million gal/month non - tidal (6 million in tidal), all others report
- 15 year permit durations for all users

Surface Water Permitting in SC

- June 7, 2010- The Surface Water Permitting, Withdrawal, and Reporting Act, approved by the General Assembly
- January 1, 2011-Act Became Effective
- June 22, 2012 • Regulation R.61-119 approved by Legislature

Surface Water Regulatory Requirements

Permits

- Safe Yield evaluation required
- Reasonable use evaluation
- Min in -stream flow evaluation
- Drought contingency plan
- Public Notice
- Permit with expiration
- Application and annual fee (per intake)

Grandfathered Permits

- Permit with expiration
- Contingency plan (water conservation only)
- Annual fee (per intake)

Registrations

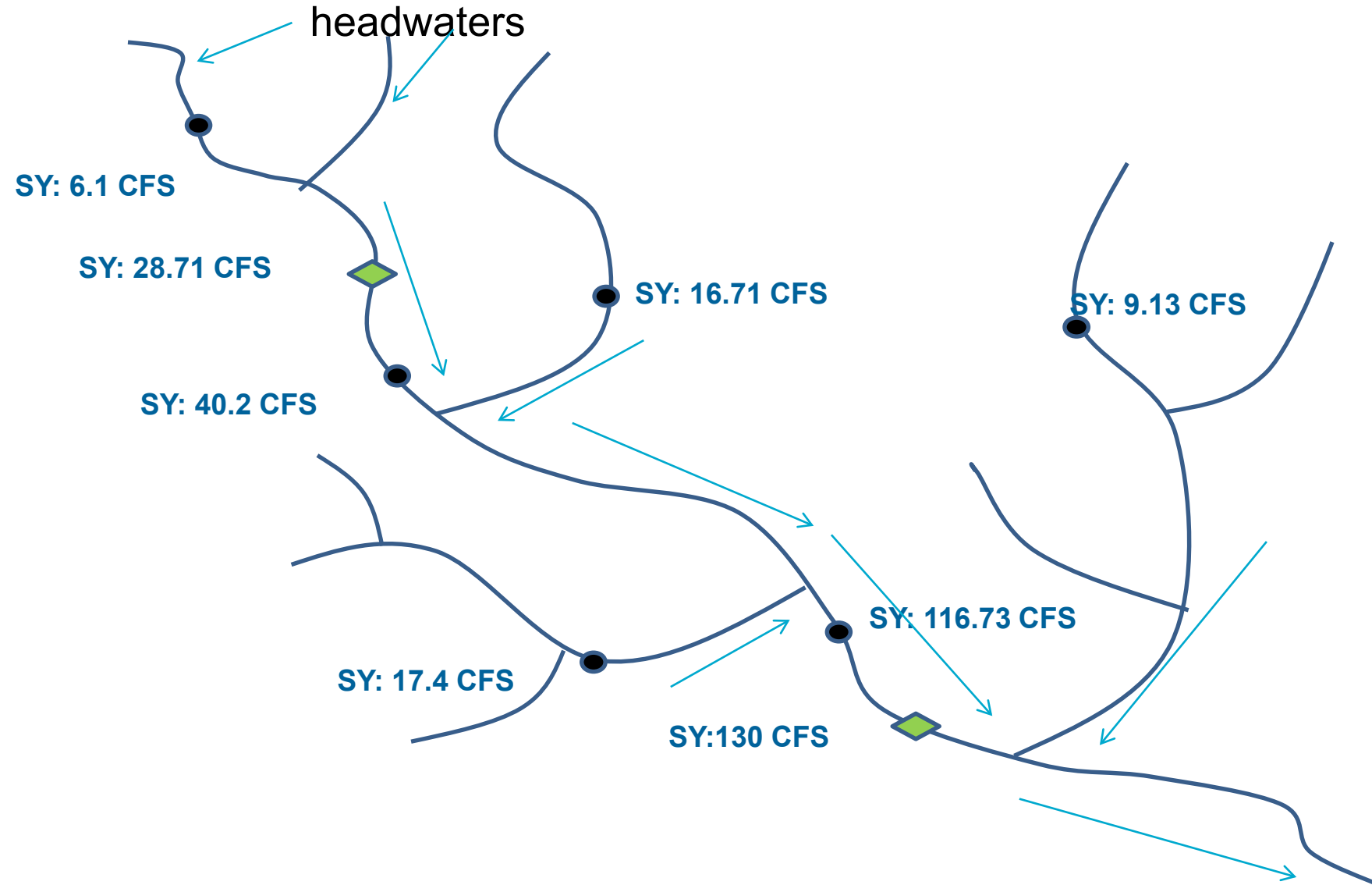
- Safe Yield evaluation required

"Safe yield"

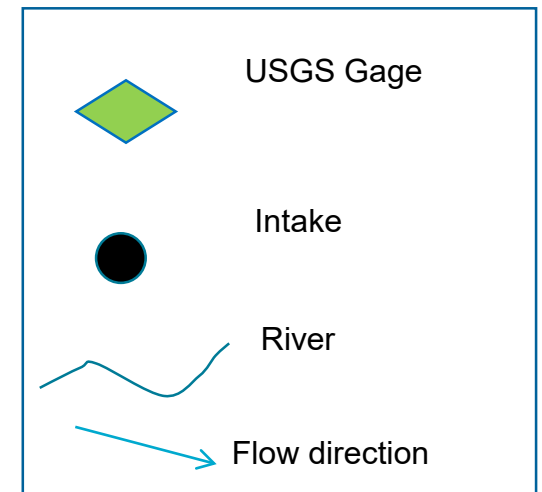
means the amount of water available for withdrawal from a particular surface water source in excess of the minimum instream flow or minimum water level for that surface water source. Safe yield is determined by comparing the natural and artificial replenishment of the surface water to the existing or planned consumptive and nonconsumptive uses.

Safe Yield

- The calculation of safe yield (legally available water for withdrawal) is the same for a permit or agricultural registration
- Applies only to the **point of withdrawal** , is **not** a basin value and does **not** apply upstream or downstream of the withdrawal point
- Is a **volume** of water that can be legally permitted for withdrawal, permits are issued in Millions of Gallons per Month
- Not to be confused with minimum instream flows
- Is a limit on what can be permitted for withdrawal and is adjusted to account for other users
- Drought Act (DNR) will rule in extreme water shortages



Typical river system showing the safe yield (SY) increasing as you move down stream from the headwaters.



"Minimum instream flow"

means the flow that provides an adequate supply of water at the surface water withdrawal point to maintain the biological, chemical, and physical integrity of the stream taking into account the needs of downstream users, recreation, and navigation and that flow is set at forty percent of the mean annual daily flow for the months of January, February, March, and April; thirty percent of the mean annual daily flow for the months of May, June, and December; and twenty percent of the mean annual daily flow for the months of July through November for surface water withdrawers as described in Section 49-4-150(A)(1).



For surface water withdrawal points located on a surface water segment downstream of and influenced by a licensed or otherwise flow controlled impoundment, "minimum instream flow" means the flow that provides an adequate supply of water at the surface water withdrawal point to maintain the biological, chemical, and physical integrity of the stream taking into account the needs of downstream users, recreation, and navigation and that flow is set in Section 49-4-150(A)(3).

How is Safe Yield Calculated in R61 - 119?

- For withdrawals in a stream segment not influenced by a licensed or otherwise flow controlled impoundment
- For withdrawals located on a stream segment materially influenced by a licensed or otherwise flow controlled impoundment
- For withdrawals from a licensed or otherwise flow controlled impoundment
- For withdrawals from an impoundment that is not considered a licensed or otherwise flow controlled impoundment under this regulation

For withdrawals in a stream segment not influenced by a licensed or otherwise flow controlled impoundment

the safe yield is calculated as the difference between the mean annual daily flow and twenty (20) percent of mean annual daily flow at the withdrawal point, taking into consideration natural and artificial replenishment of the surface water and affected downstream withdrawals.

For withdrawals located on a stream segment materially influenced by a licensed or otherwise flow controlled impoundment

the safe yield is calculated as the difference between mean annual daily flow and the lowest designated flow in the license specified for normal conditions (non - drought), taking into consideration natural and artificial replenishment of the surface water and affected downstream withdrawals and natural attenuation of the stream flow between the licensed or otherwise flow controlled impoundment and the surface water withdrawal point.

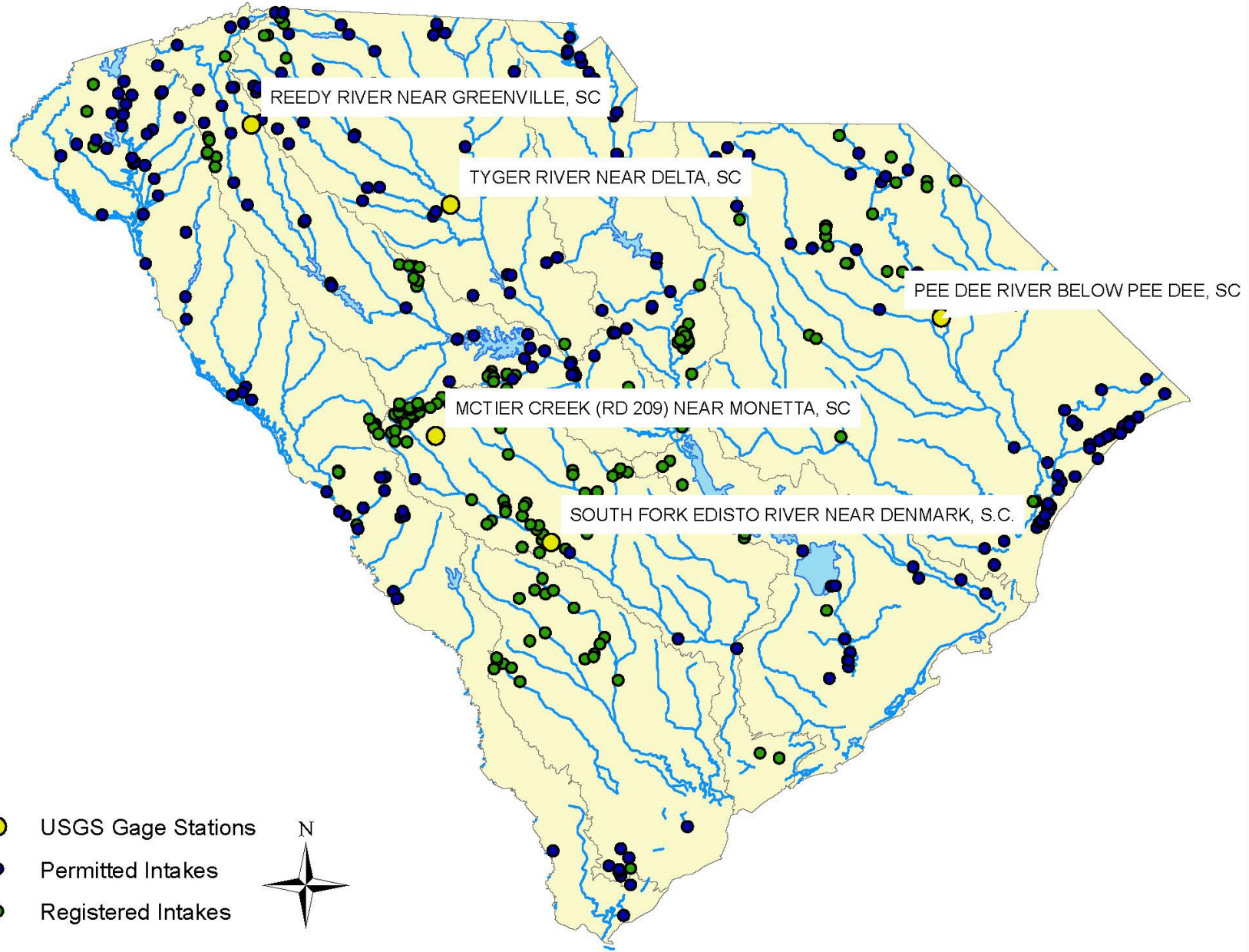


For withdrawals from a licensed or otherwise flow controlled impoundment

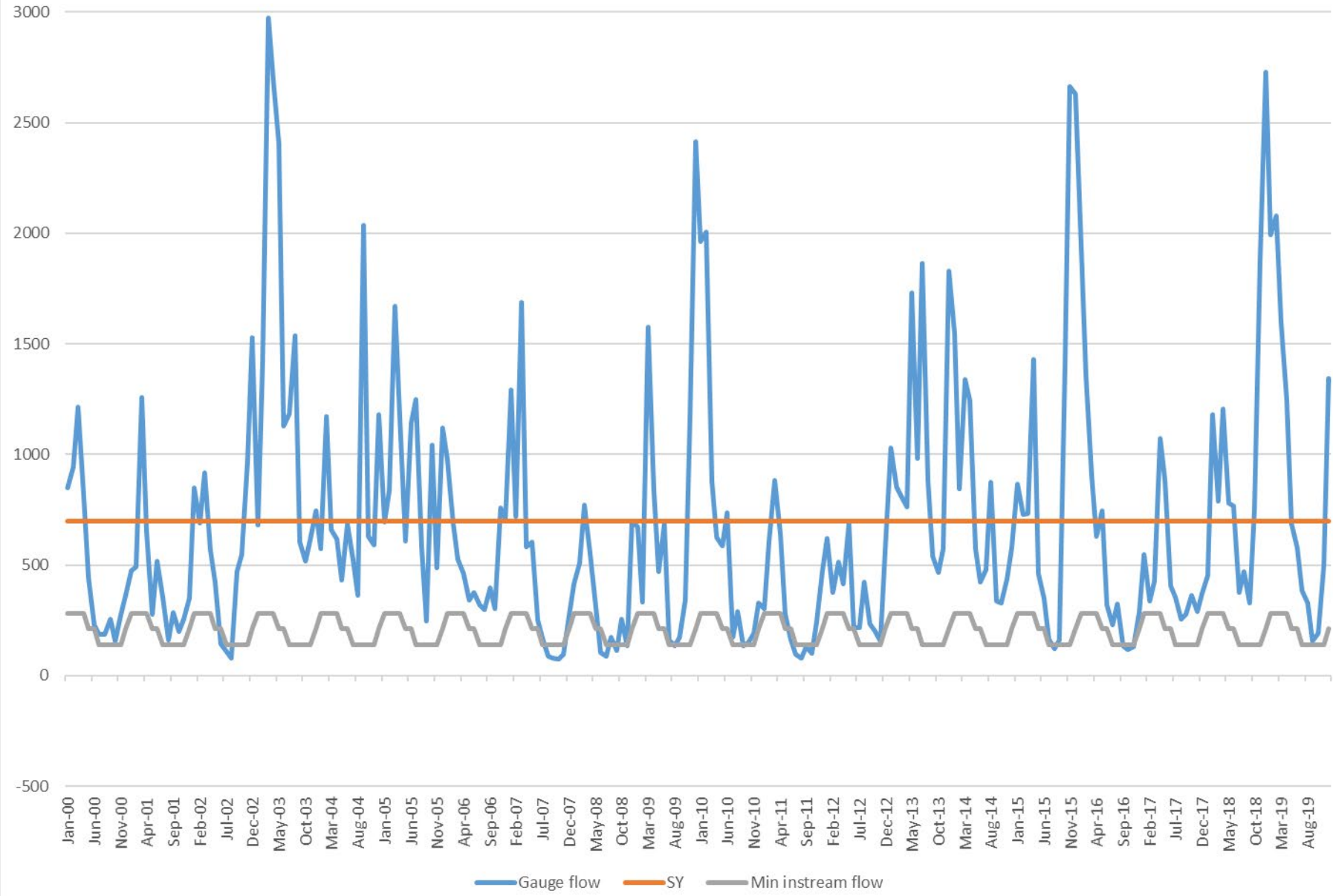
safe yield is calculated as the maximum amount that would not cause a reservoir water level to drop below its minimum water level or to be able to release the lowest minimum flow specified in the license for that impoundment as issued by the appropriate governmental agency.

For withdrawals from an impoundment that is not considered a licensed or otherwise flow controlled impoundment under this regulation

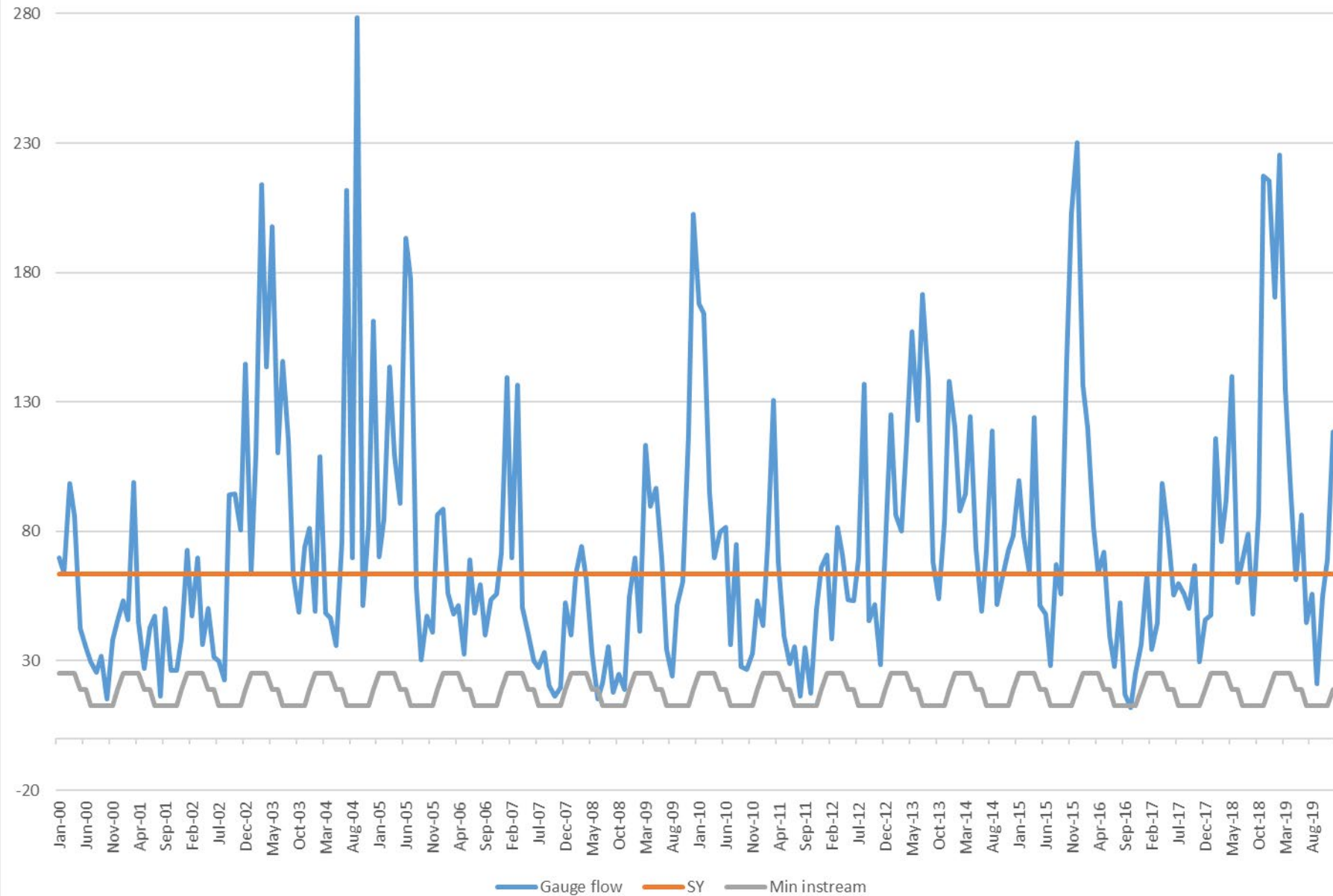
the safe yield is calculated as the maximum amount that would not cause the impoundment water level to drop below its minimum water level as established by the Department with input from the applicant and the owner(s) and operator(s) of the impoundment consistent with E.3.i(C)(2) above.



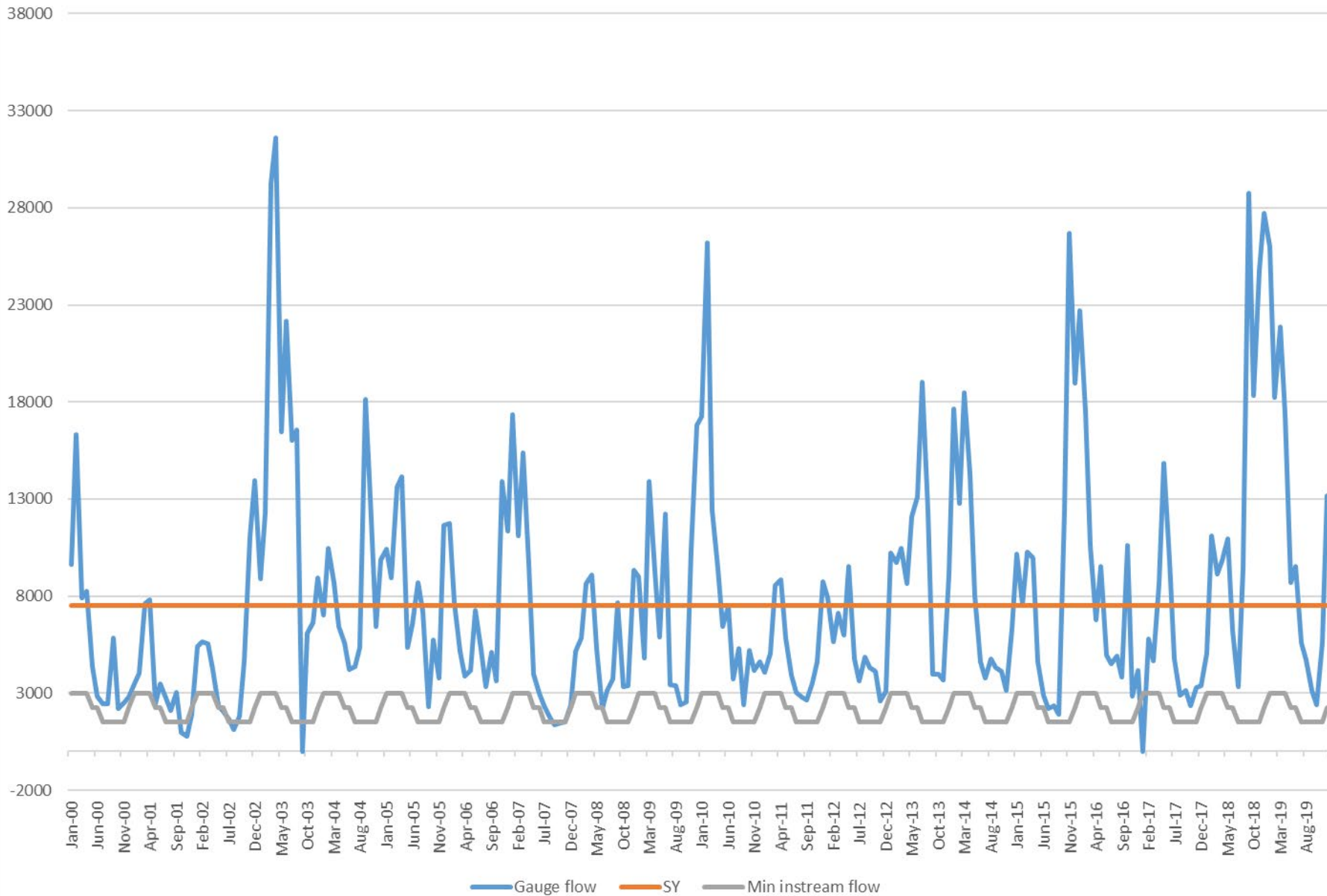
(TYGER RIVER NEAR DELTA, 02160105)



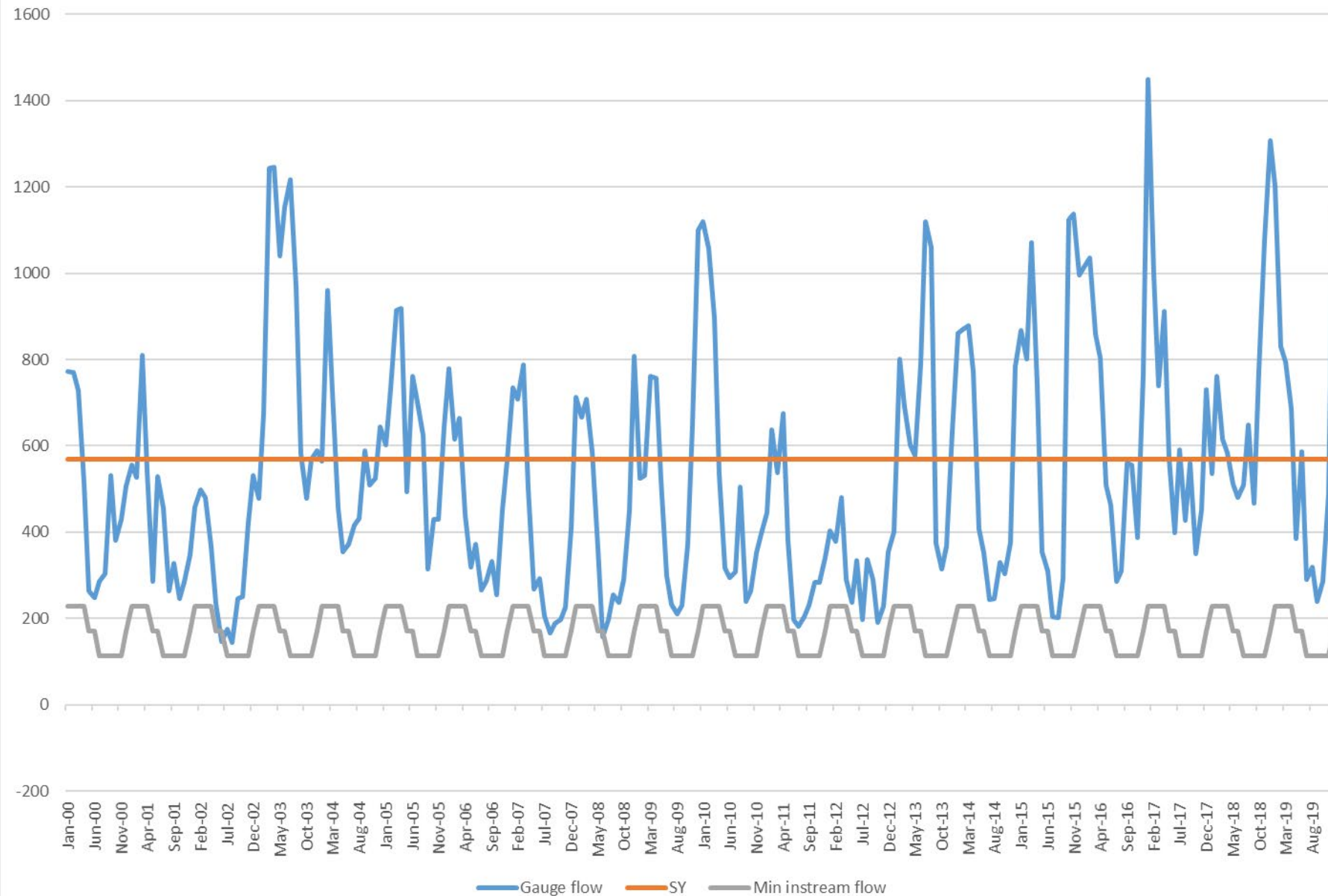
(GREENVILLE 02164000)



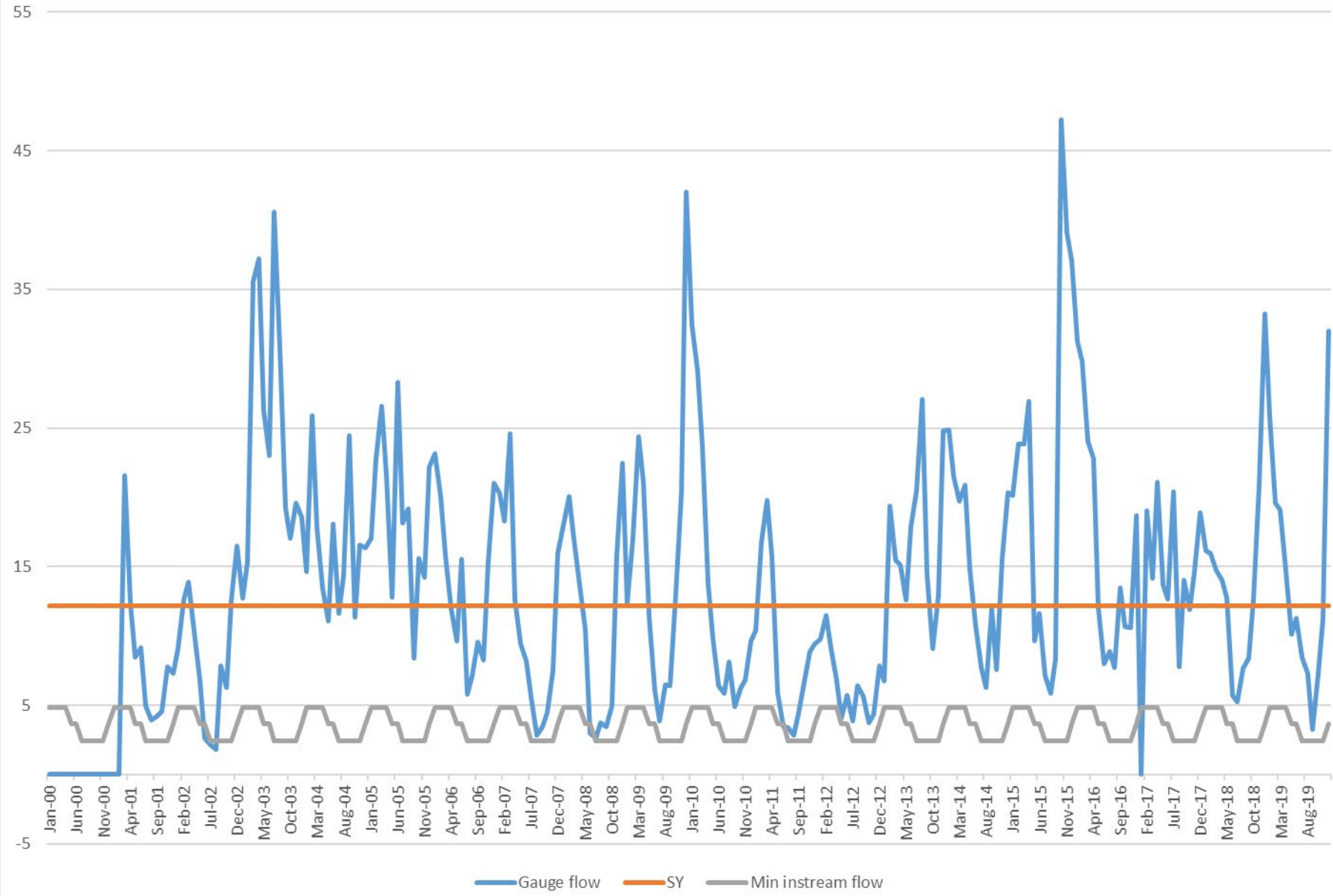
(PEE DEE 02131000)



(Denmark, 02173000)



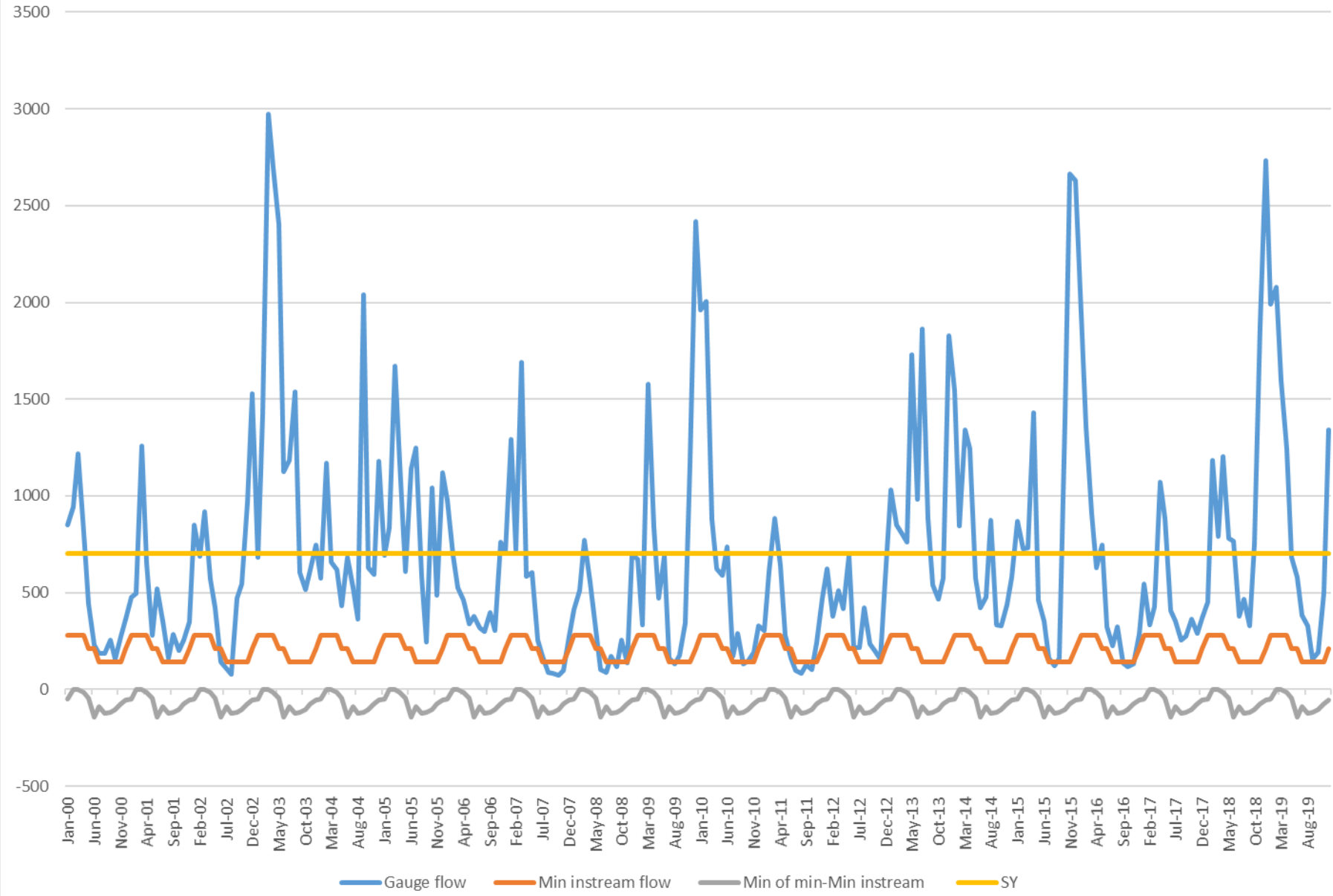
(MCTIER CREEK NEAR MONETTA 02172300)



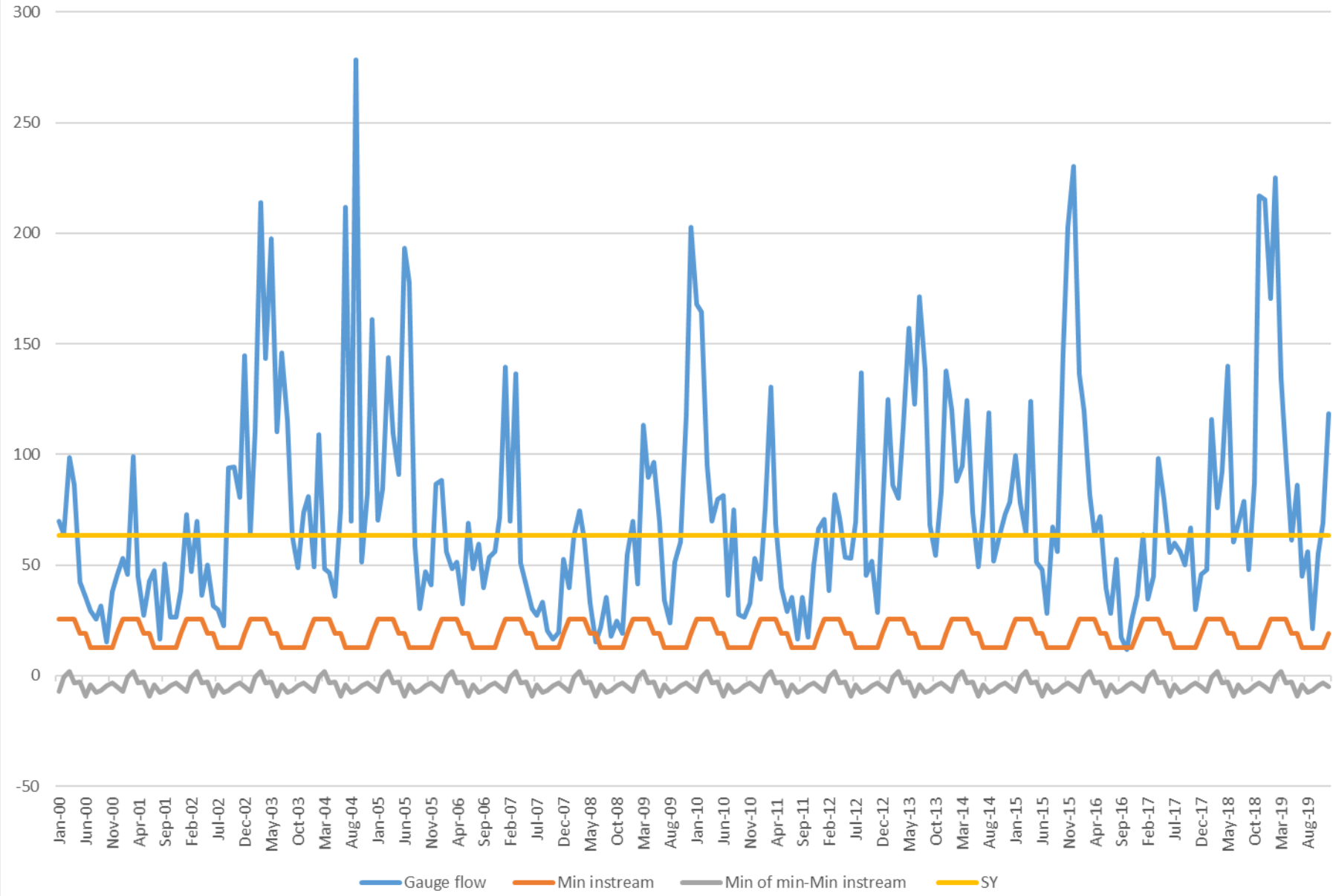
Possible Alternative SY Calculations

- Minimum Monthly Flow - Minimum Instream Flow
- Mean Monthly Flow - Minimum Instream Flow
- Median Monthly Flow - Minimum Instream Flow

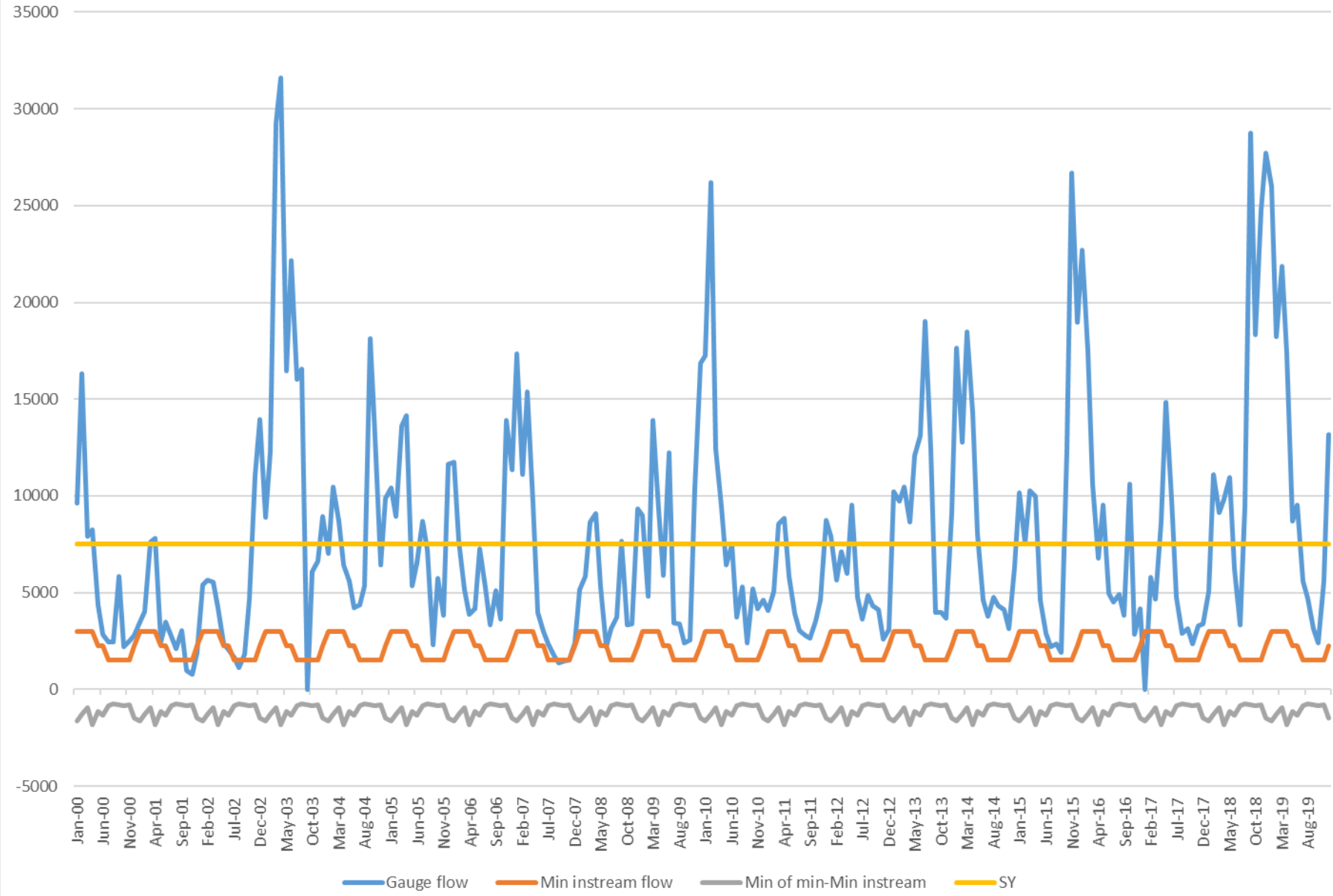
Alternate SY (TYGER RIVER NEAR DELTA, 02160105)



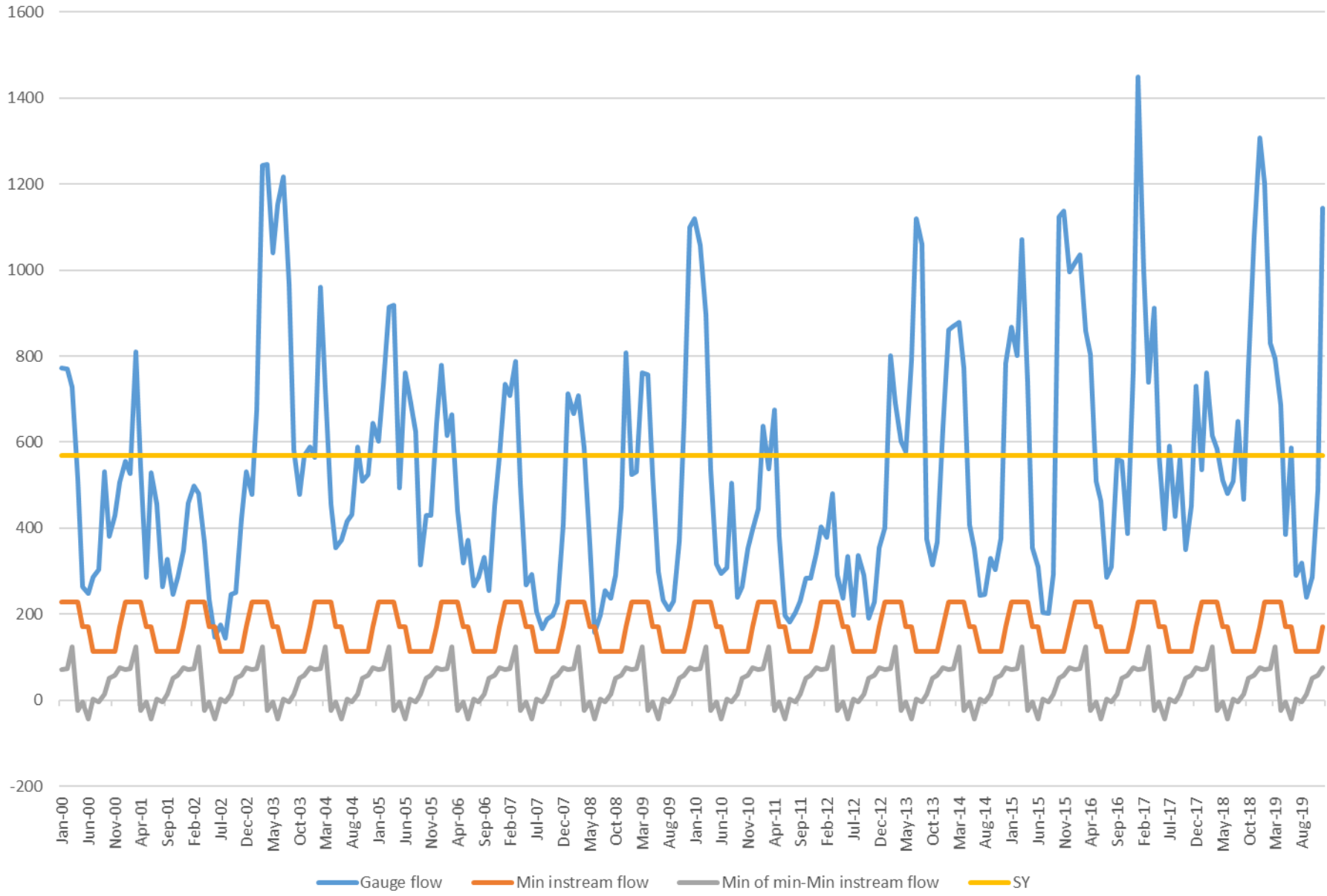
Alternate SY (GREENVILLE 02164000)



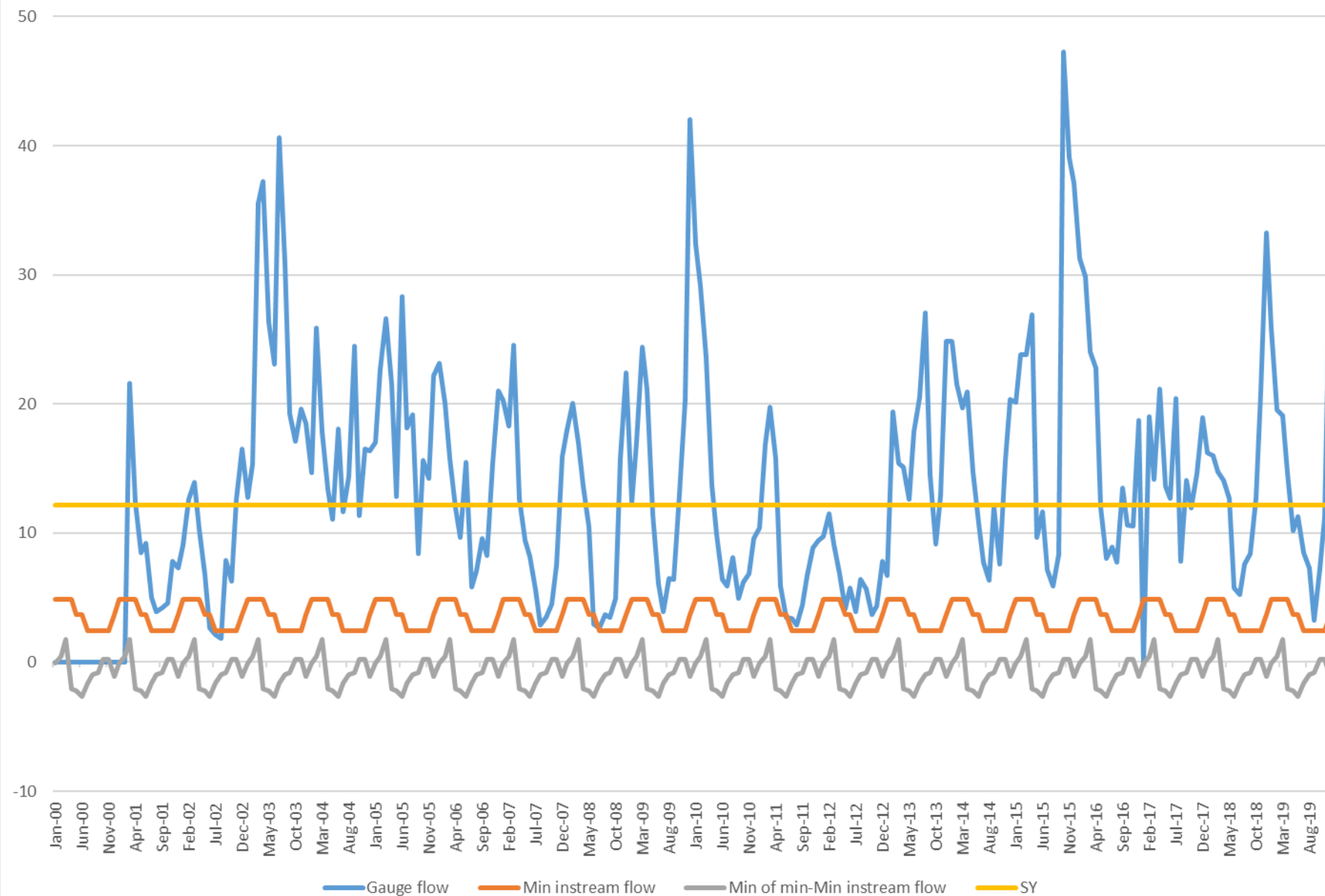
Alternate SY (PEE DEE 02131000)



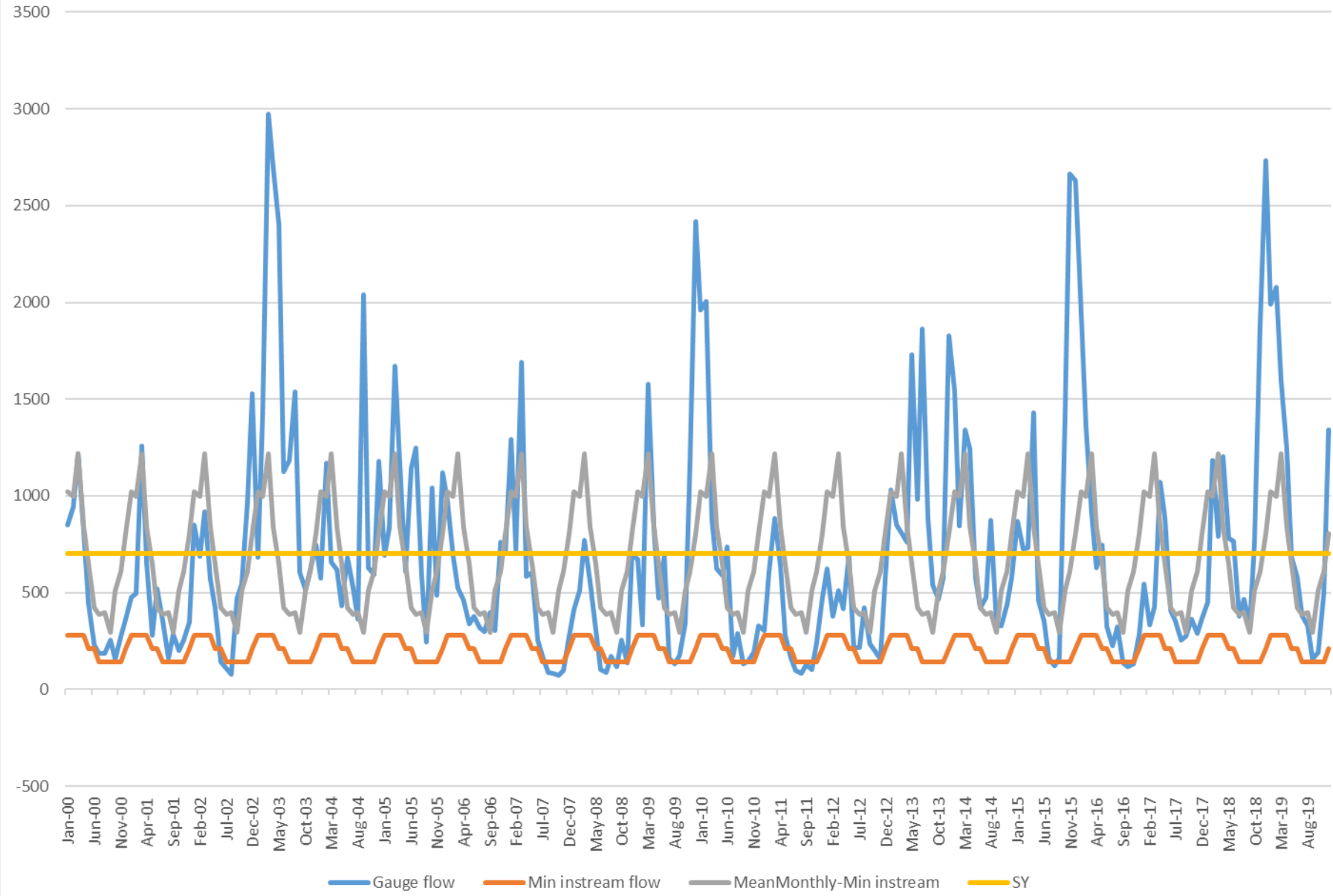
Alternate SY (Denmark, 02173000)



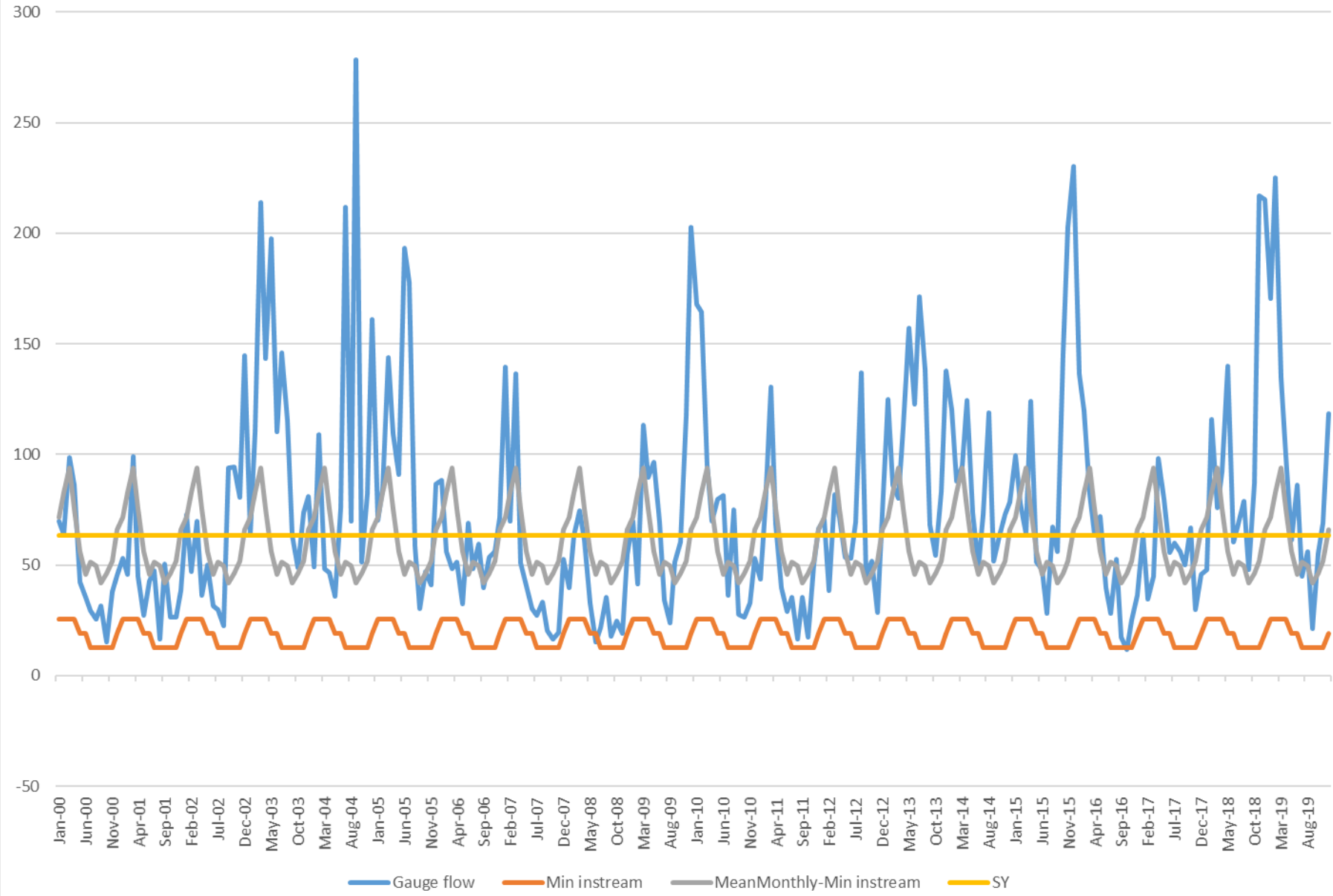
Alternate SY (MCTIER CREEK NEAR MONETTA 02172300)



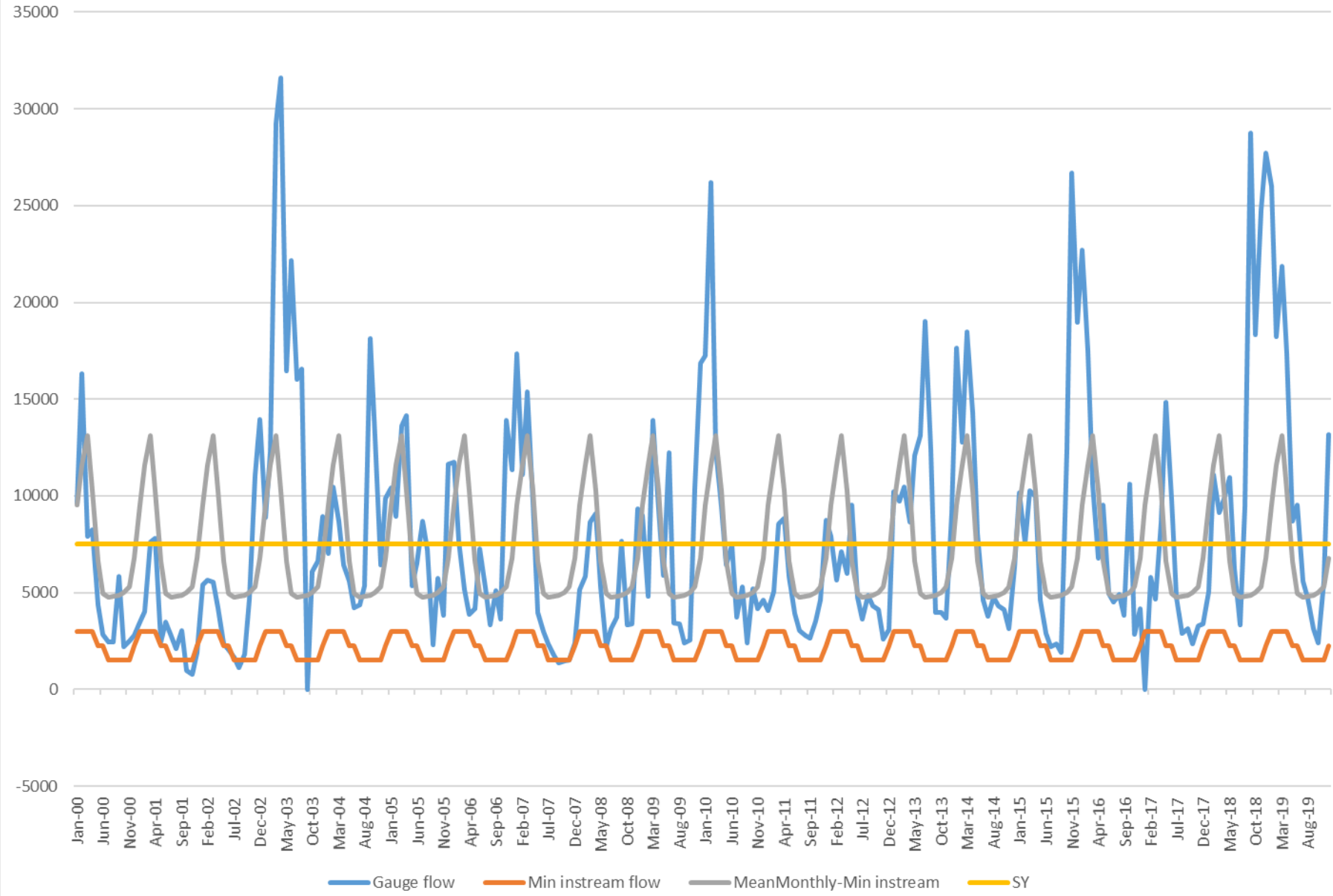
Alternate SY (TYGER RIVER NEAR DELTA, 02160105)



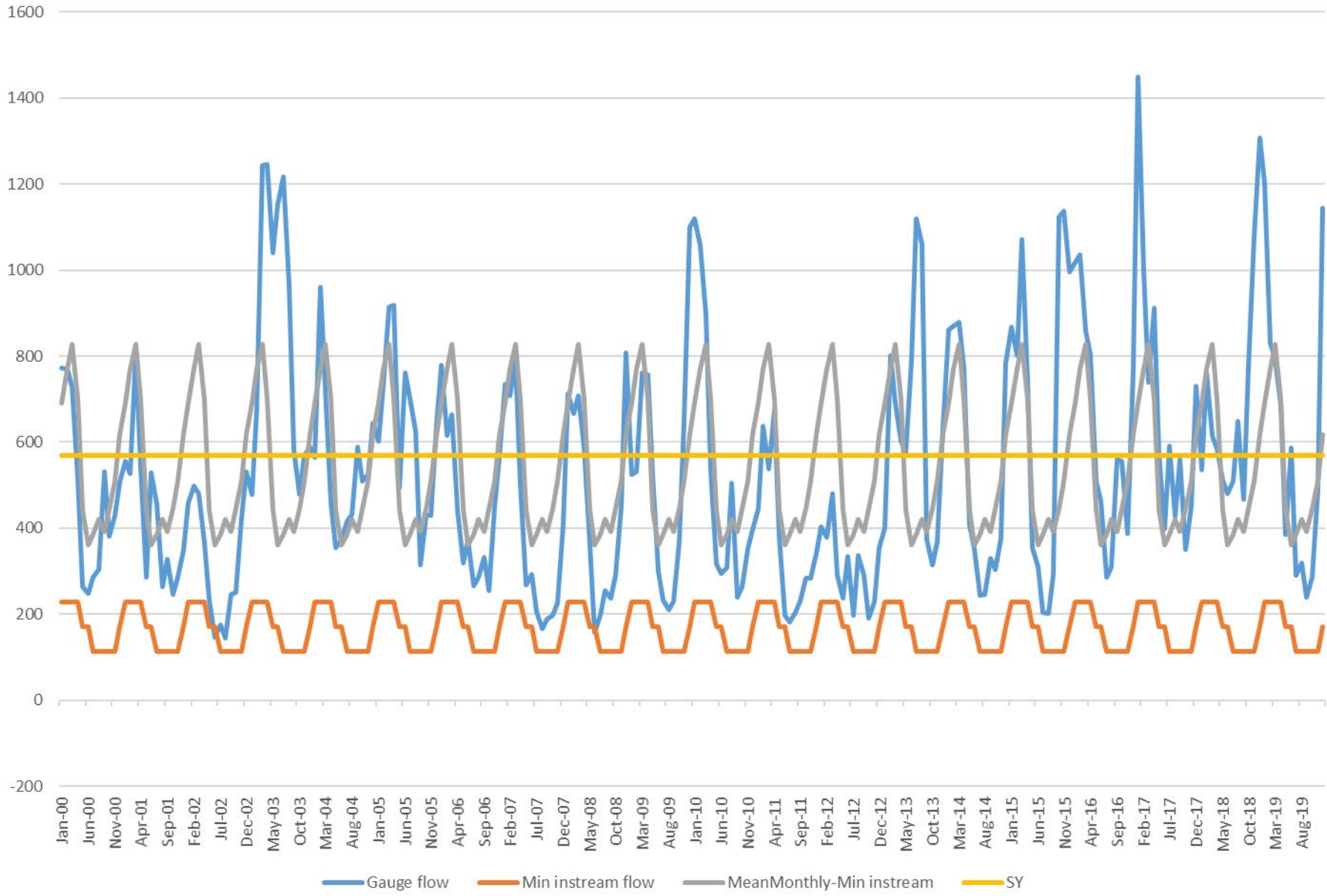
Alternate SY (GREENVILLE 02164000)



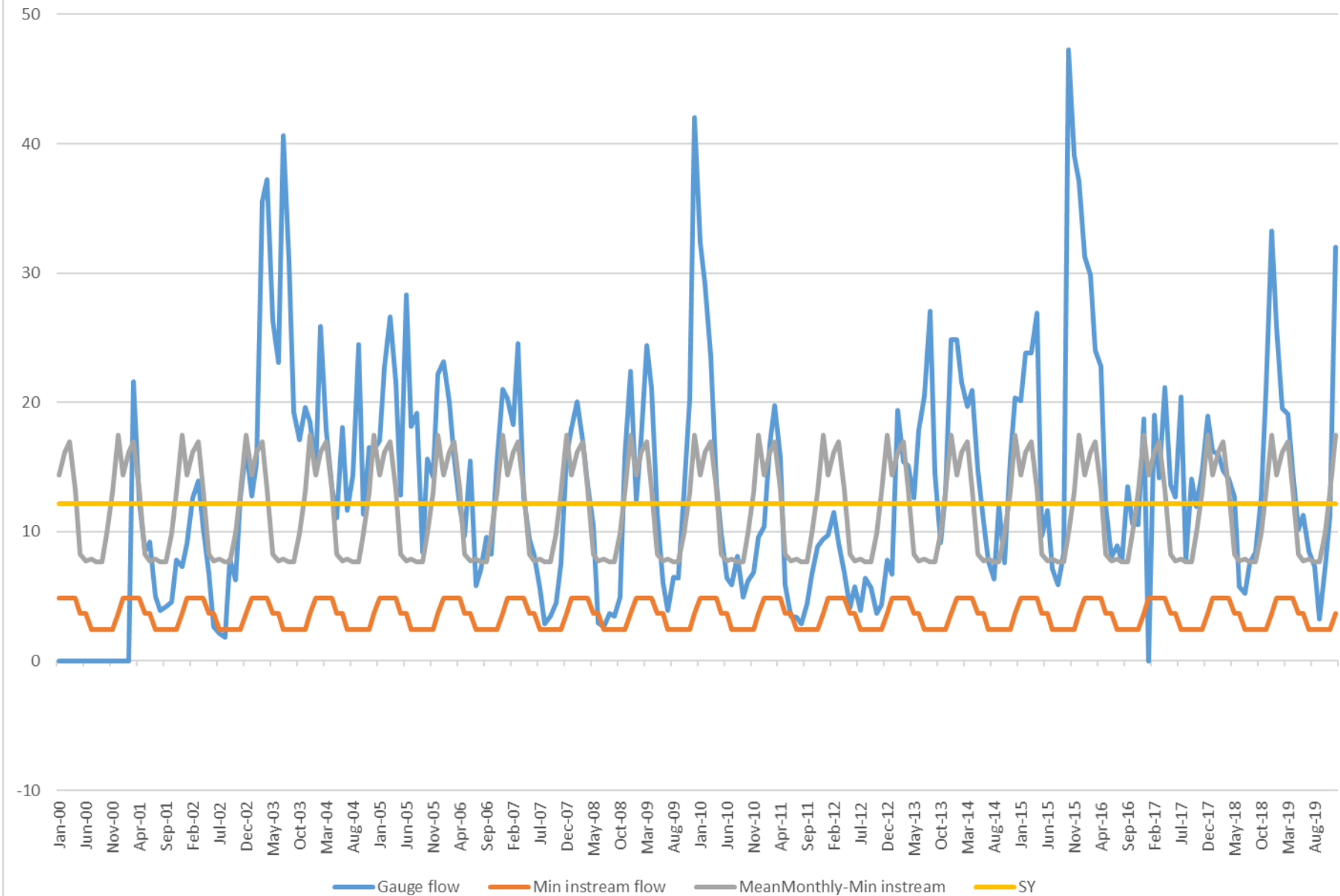
Alternate SY (PEE DEE 02131000)



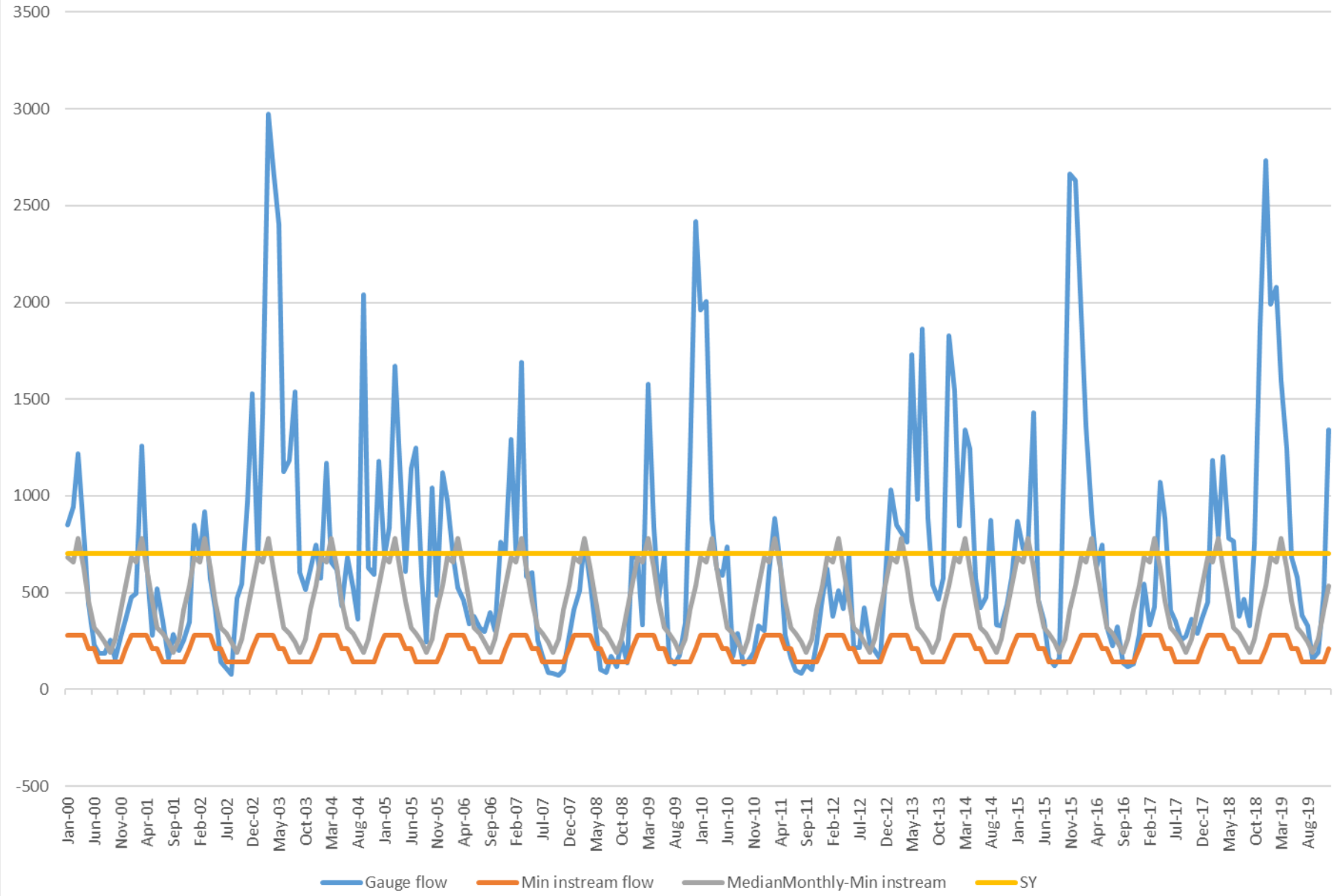
Alternate SY (Denmark, 02173000)



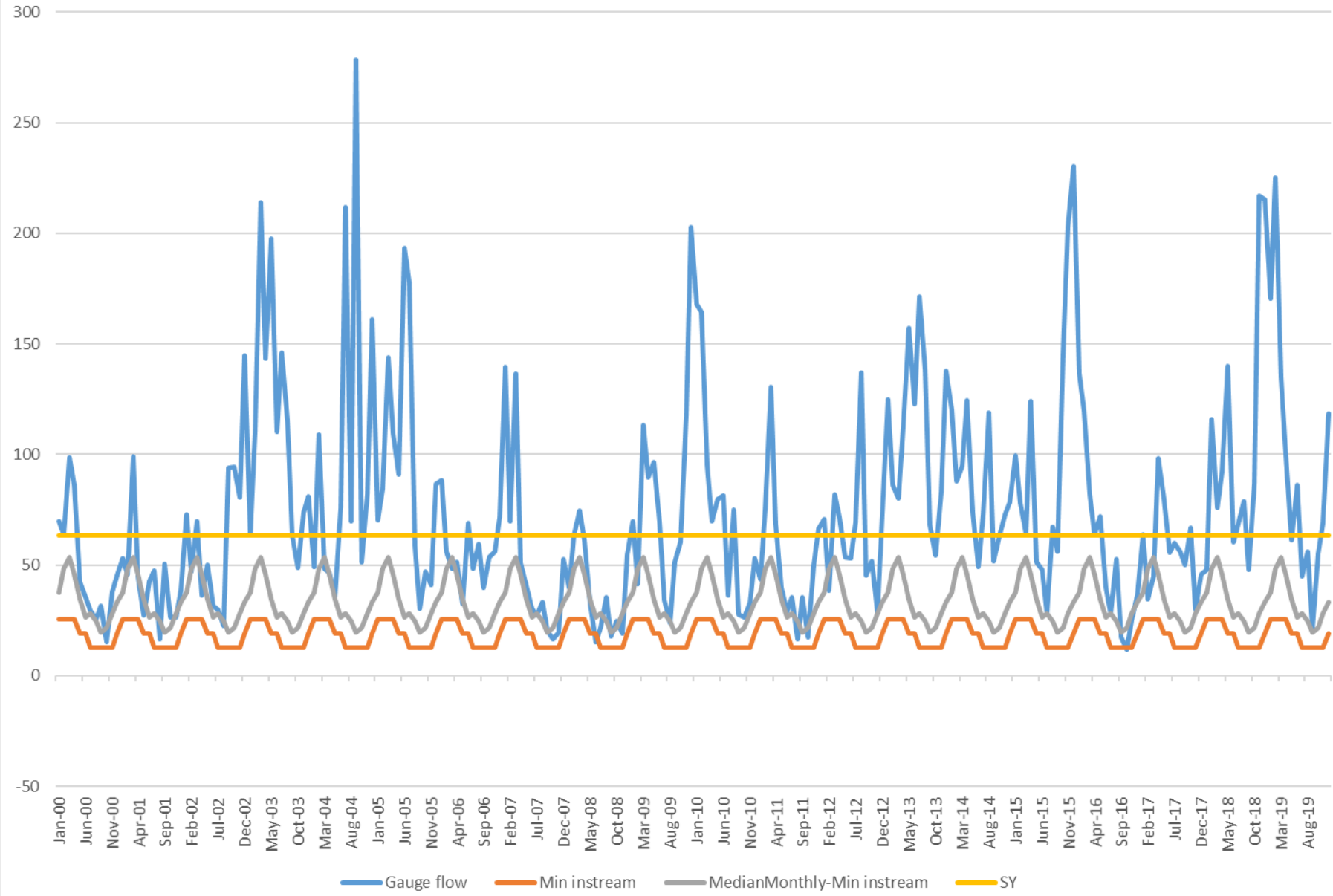
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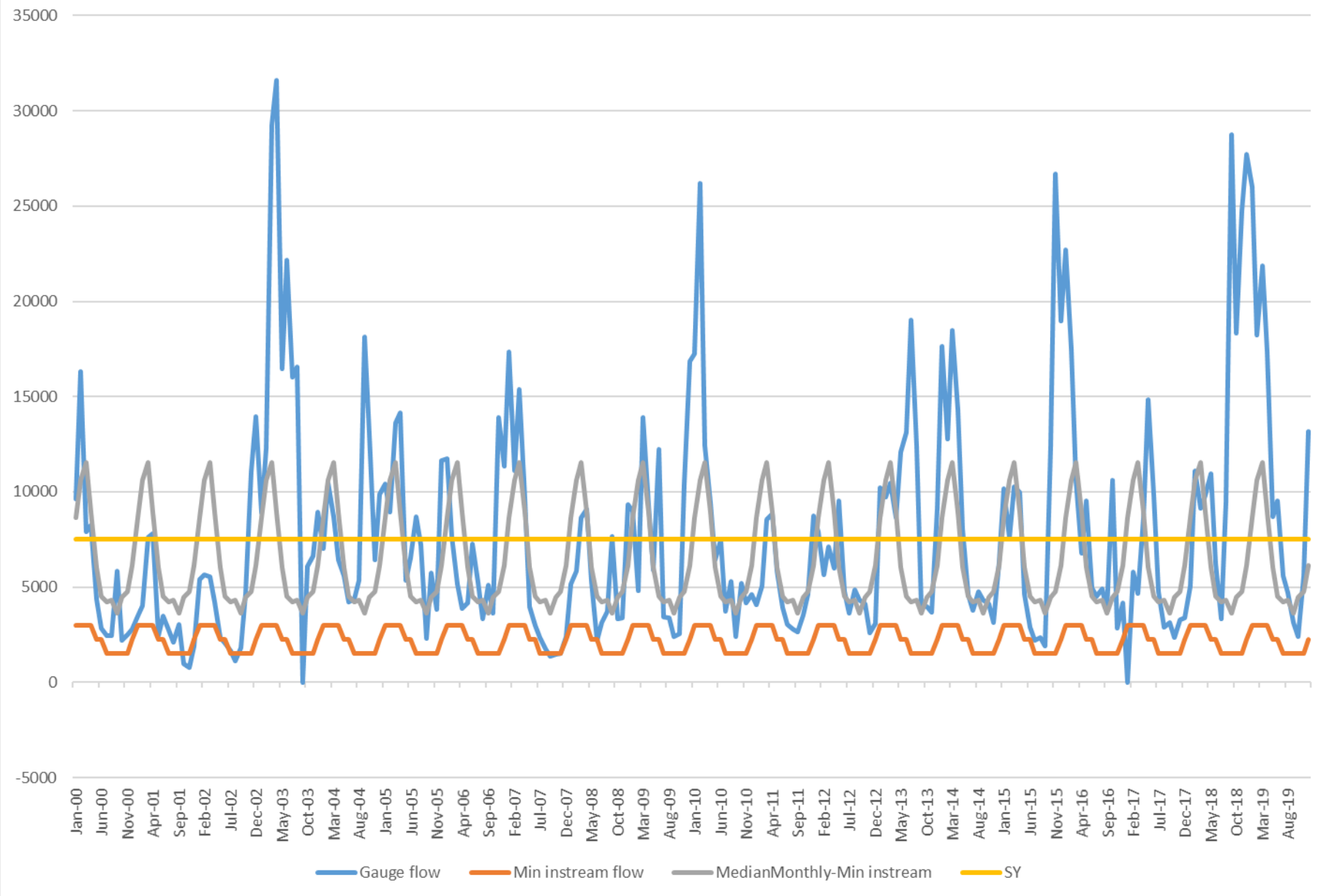
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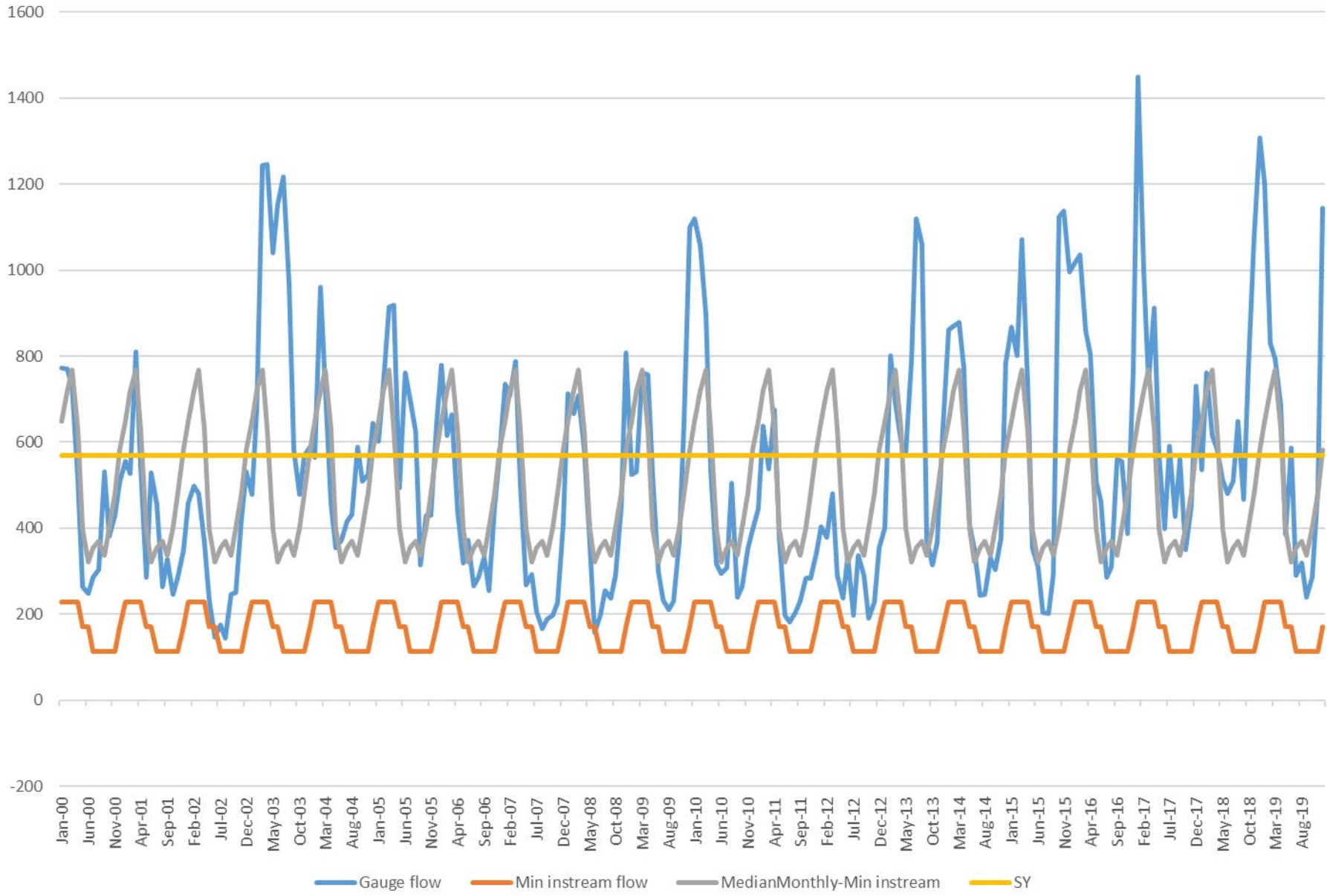
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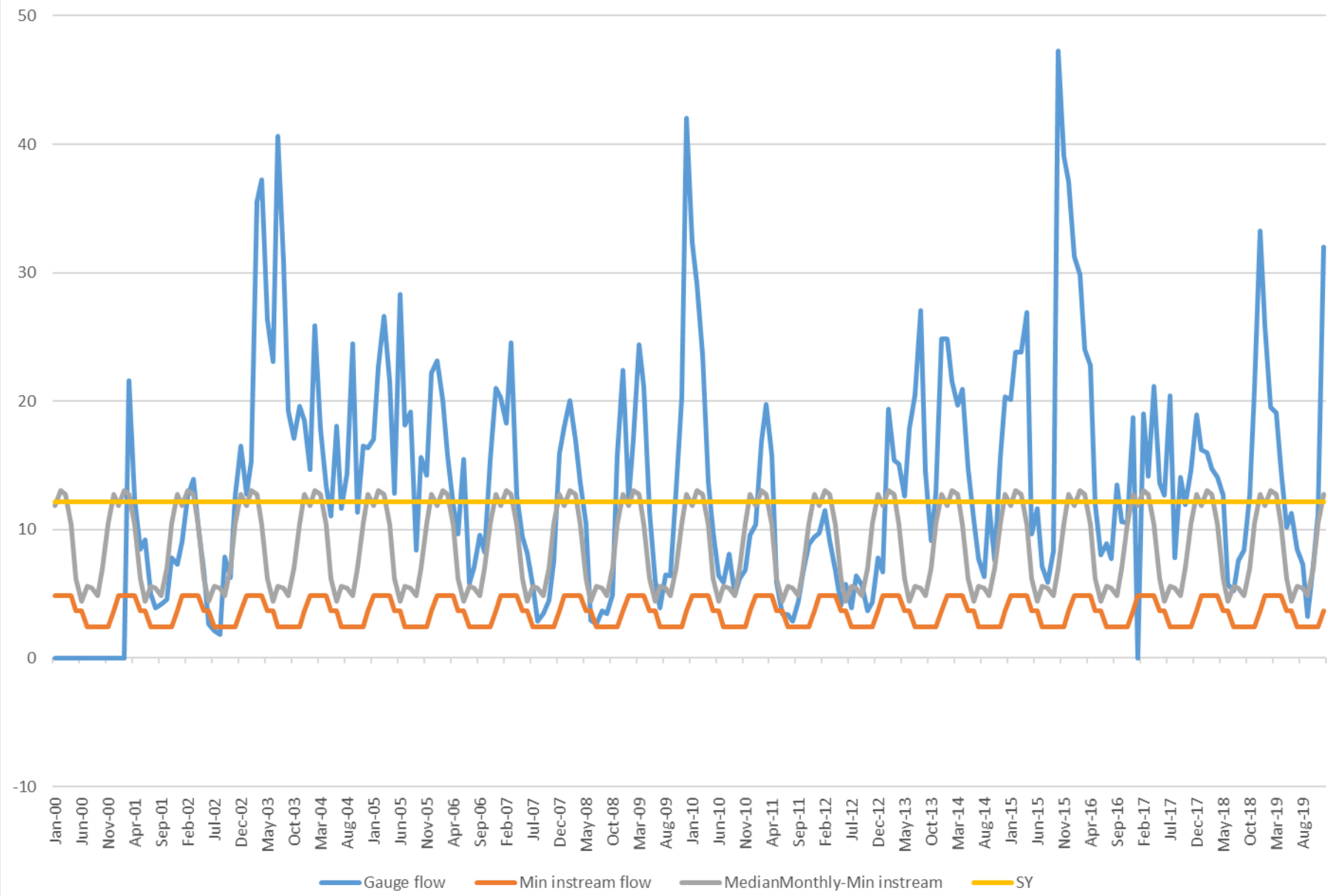
Alternate SY (PEE DEE 02131000)



Alternate SY (Denmark, 02173000)



Alternate SY (MCTIER CREEK NEAR MONETTA 02172300)



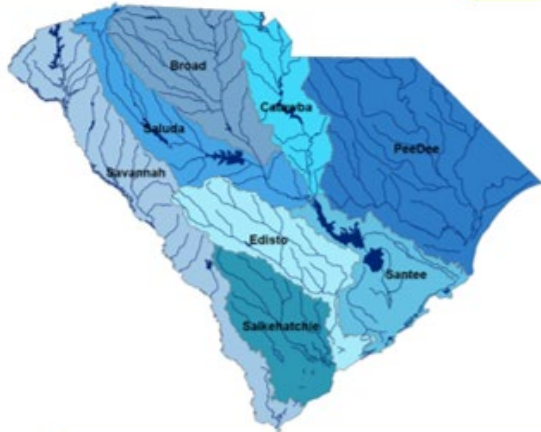
How will alternatives be evaluated?

Is it allowable under current law?

Is it scalable to Statewide Permitting Process?

Is calculation protective of the resource (while still allowing for use of the resource) across varied stream types?

Can the evaluation be done given the Departmental resources?



Status of the Available Safe Yield Across South Carolina's Watersheds



January 2020

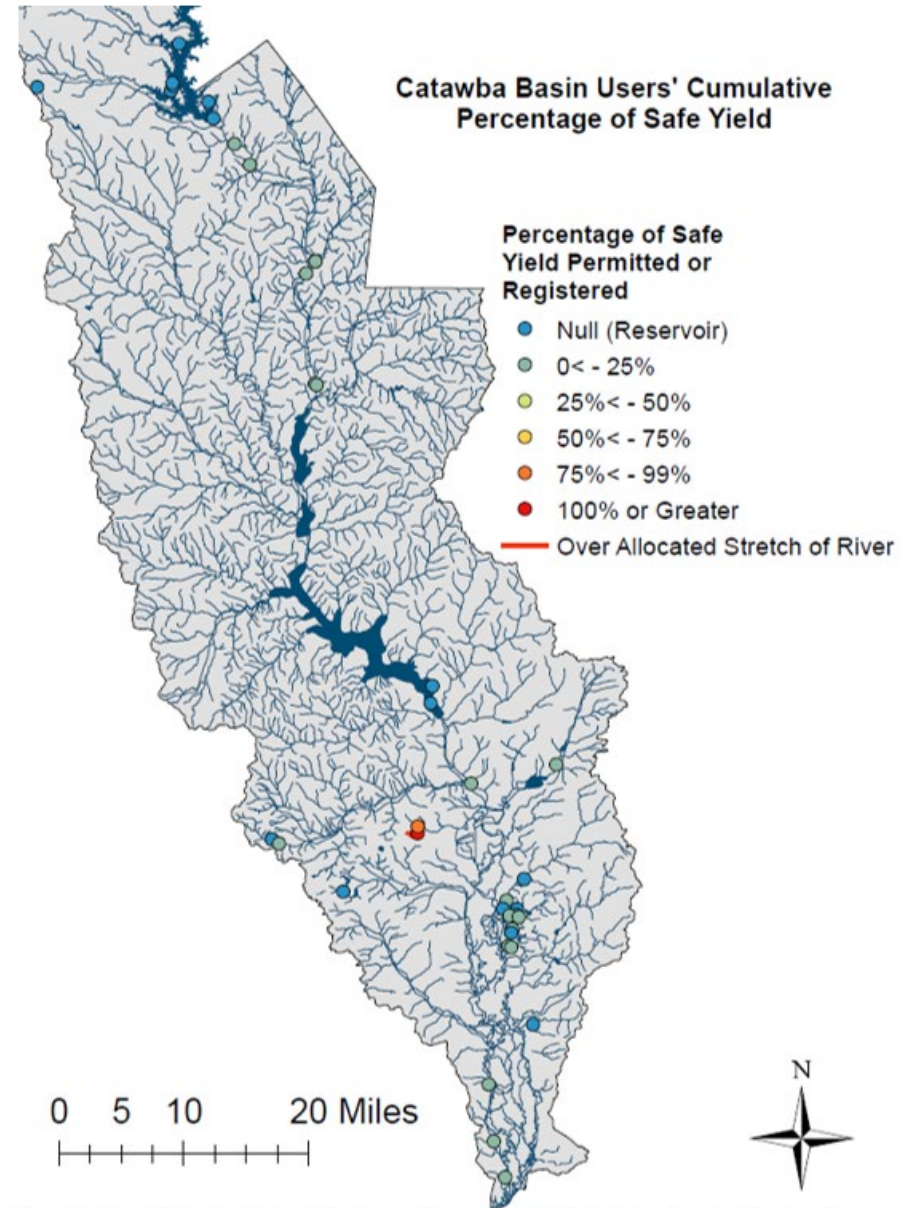


Figure 19: Map of Catawba Basin with Intakes and Percentage of Safe Yield Permitted or Registered

Discussion

What other criteria should be considered for alternative safe yield calculations?

Are there specific scenarios that should be considered?



Meeting #2 (February 18th)

Evaluate alternative calculations submitted by the work -group.
(Please submit by February 8)

Do we need more time at each meeting?



CONTACT US

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