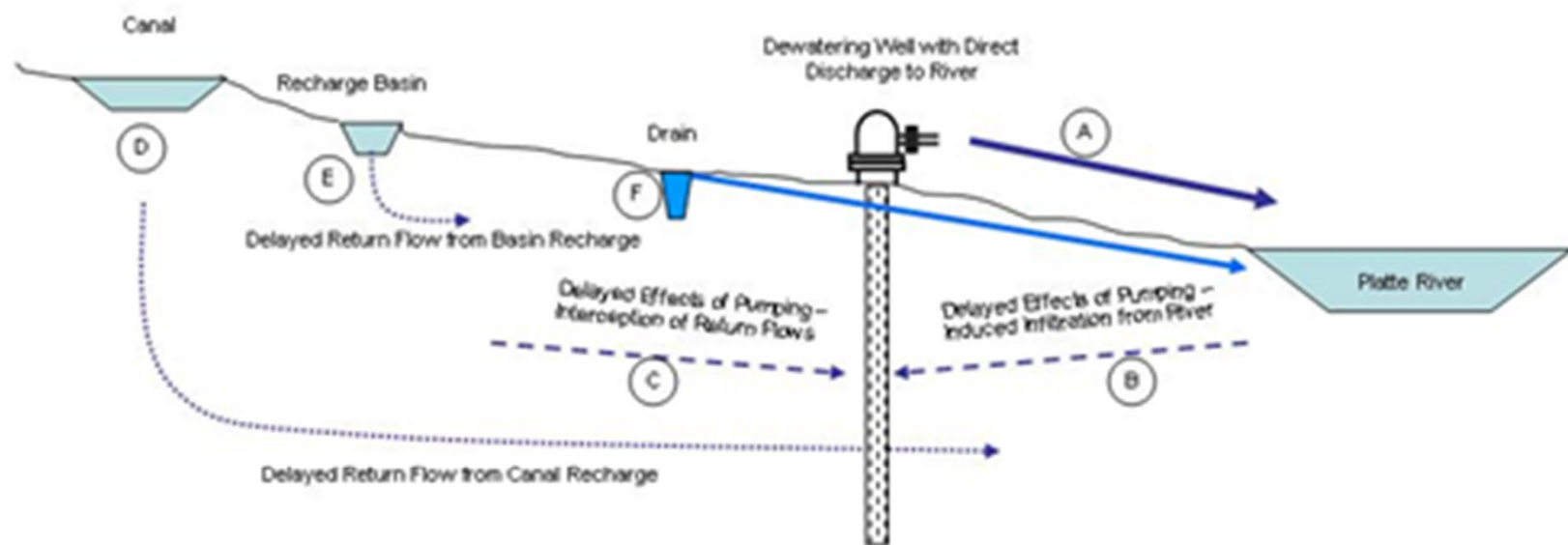


Recharge Recapture Network

WAC Meeting
October 22, 2019

Recapture Concept

- Recapture wells placed in area of influence under Phelps and Elwood
- Early in design/planning process
- Already have on recapture well on Cook property



Dewatering well discharges directly to the river (A) for immediate gain.

Pumping impacts including induced infiltration from river (B) and interception of return flows (C) are delayed.

Leakage from canal (D) and recharge from basin (E) result in delayed return flows to river. Some of these return flows are intercepted by the dewatering well.

Drains (F) intercept a portion of the natural return flows and a portion of the return flows from recharge and discharges this water directly to the river for near-immediate gain.

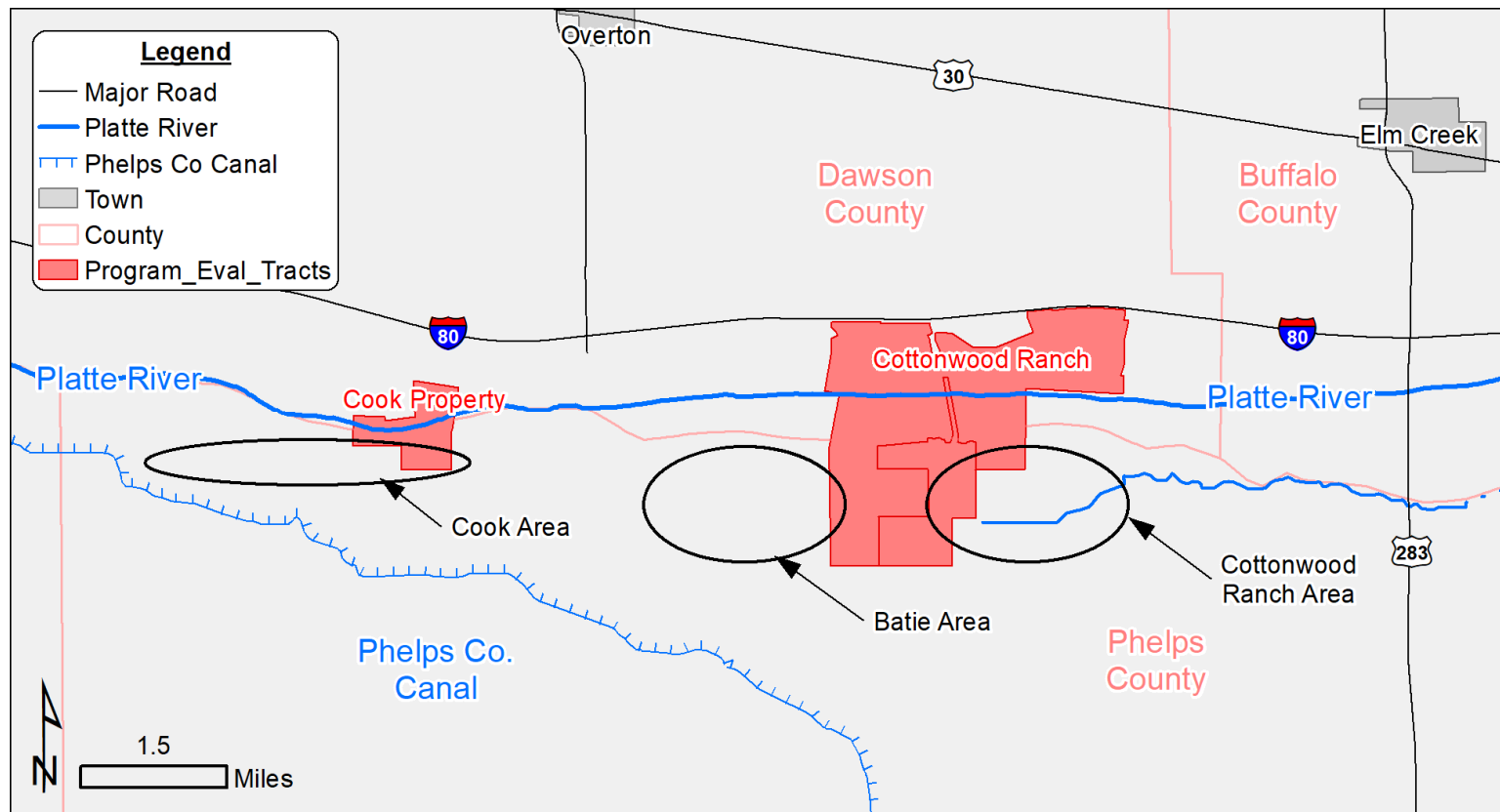
Recapture Concept

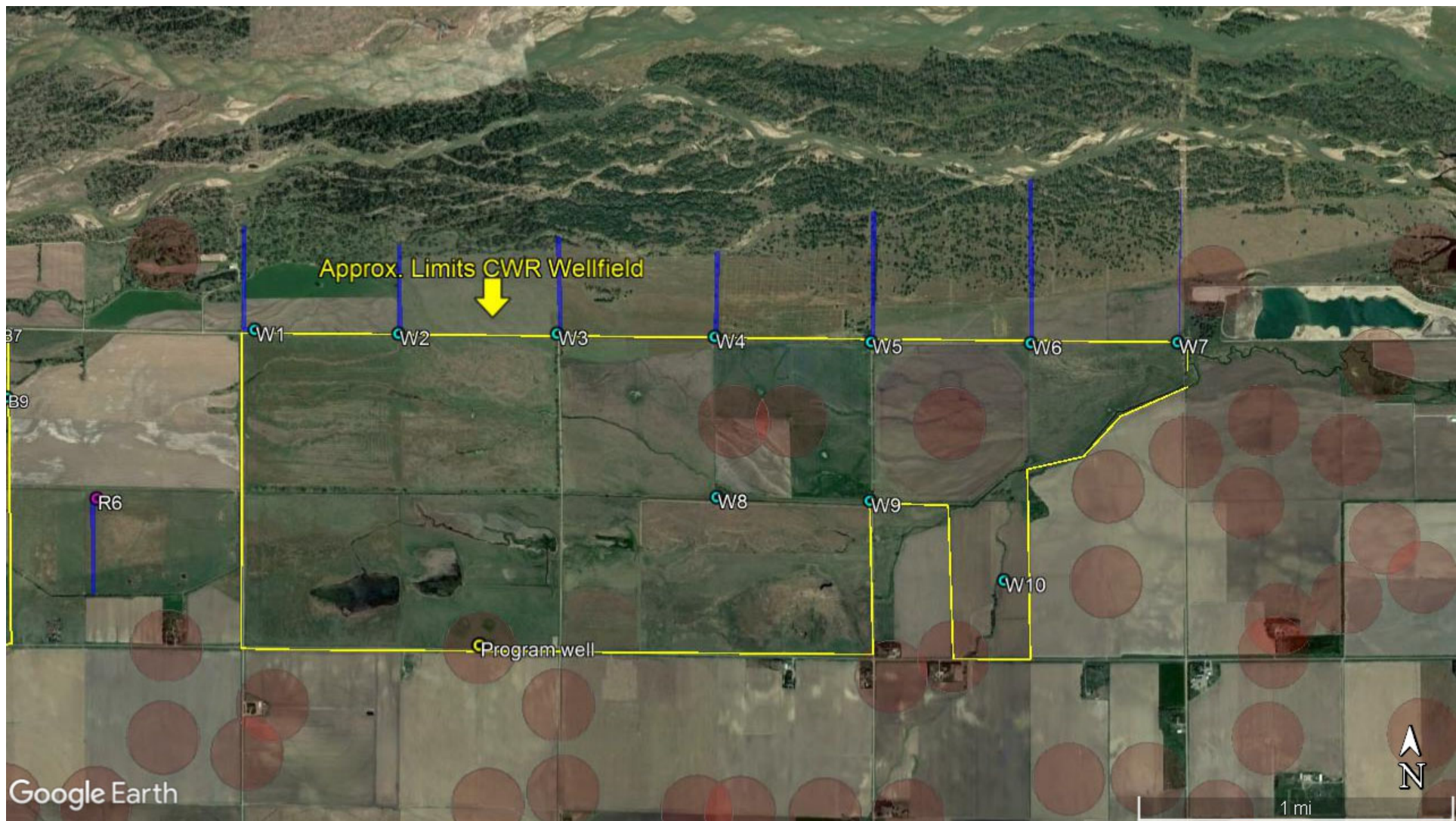
Table 1: Preliminary accounting for current Program recharge projects.

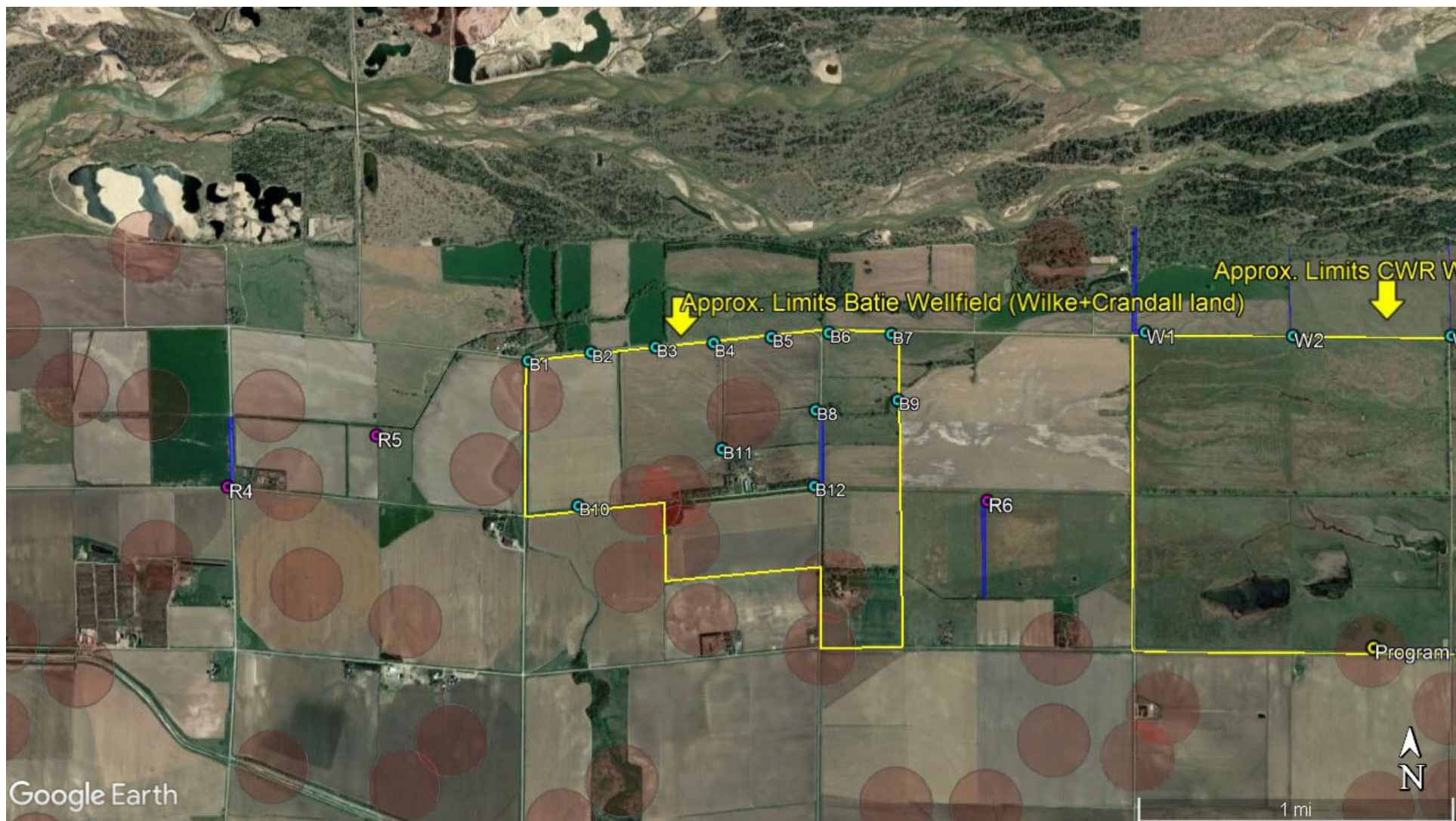
| Project | Total Recharge [AF] | Avg. Annual Recharge [AF] | Total Accretions [AF] | Aquifer Storage [AF] | Yield at GI [AF] | Yield at GI during Shortage [AF] |
|------------------|------------------------|---------------------------------|--------------------------|-------------------------|---------------------|-------------------------------------|
| Elwood Reservoir | 25,000 | 6,200 | 4,200 | 20,800 | 3,600 | 1,800 |
| Phelps Co. Canal | 29,300 | 3,700 | 19,400 | 9,900 | 16,700 | 9,000 |
| Total | 54,300 | 9,900 | 23,600 | 30,700 | 20,300 | 10,800 |

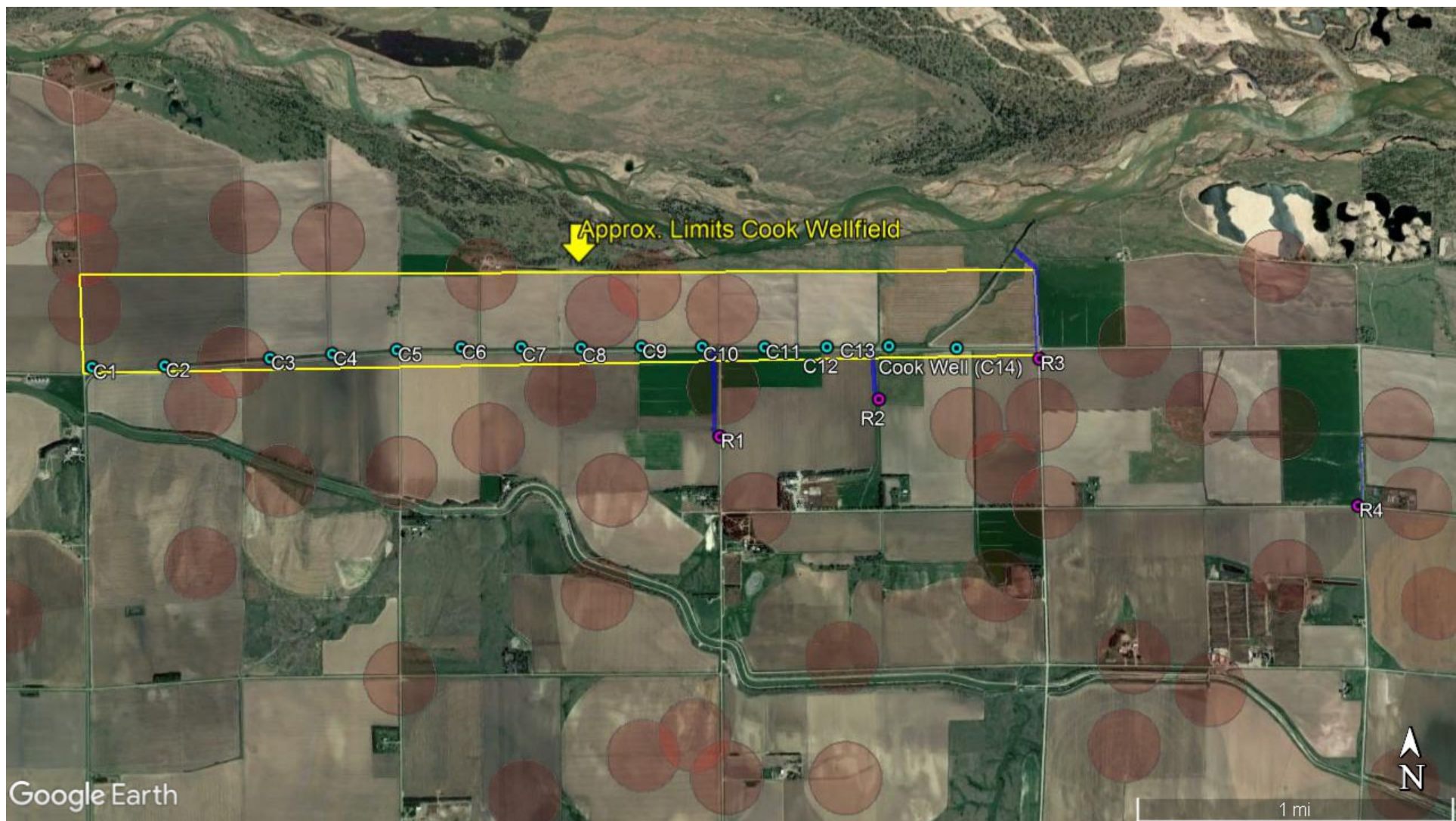
- Preliminary concept (being evaluated)
- 3 location of interest, plus a few “regional” wells
- 42 wells, capacity of 65 cfs (129 AF/d)
- Capital costs between \$4 – 5M

Recapture Concept









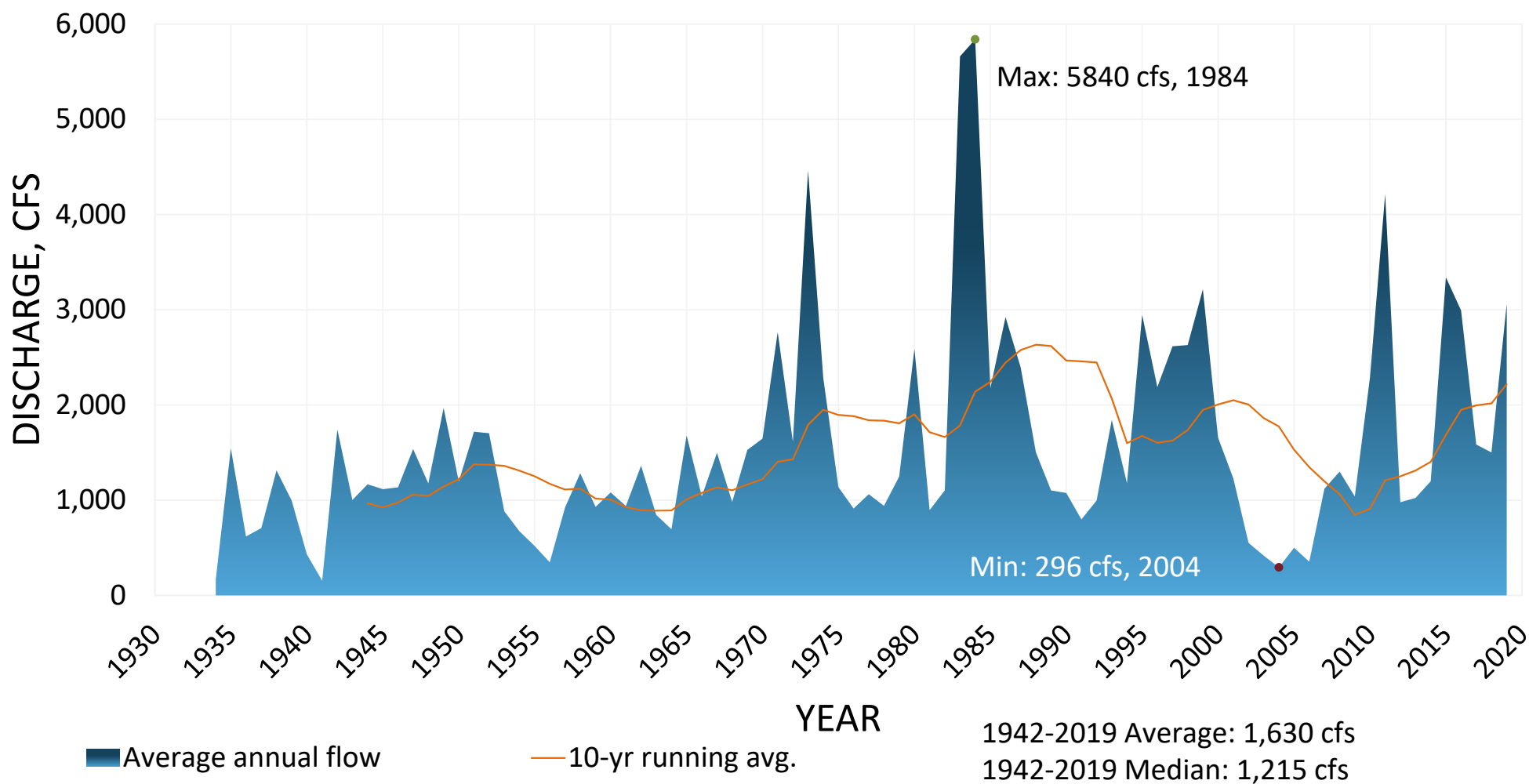
2018-2019 Flow Summary

Scott Griebeling
Sr. Water Resources
Engineer



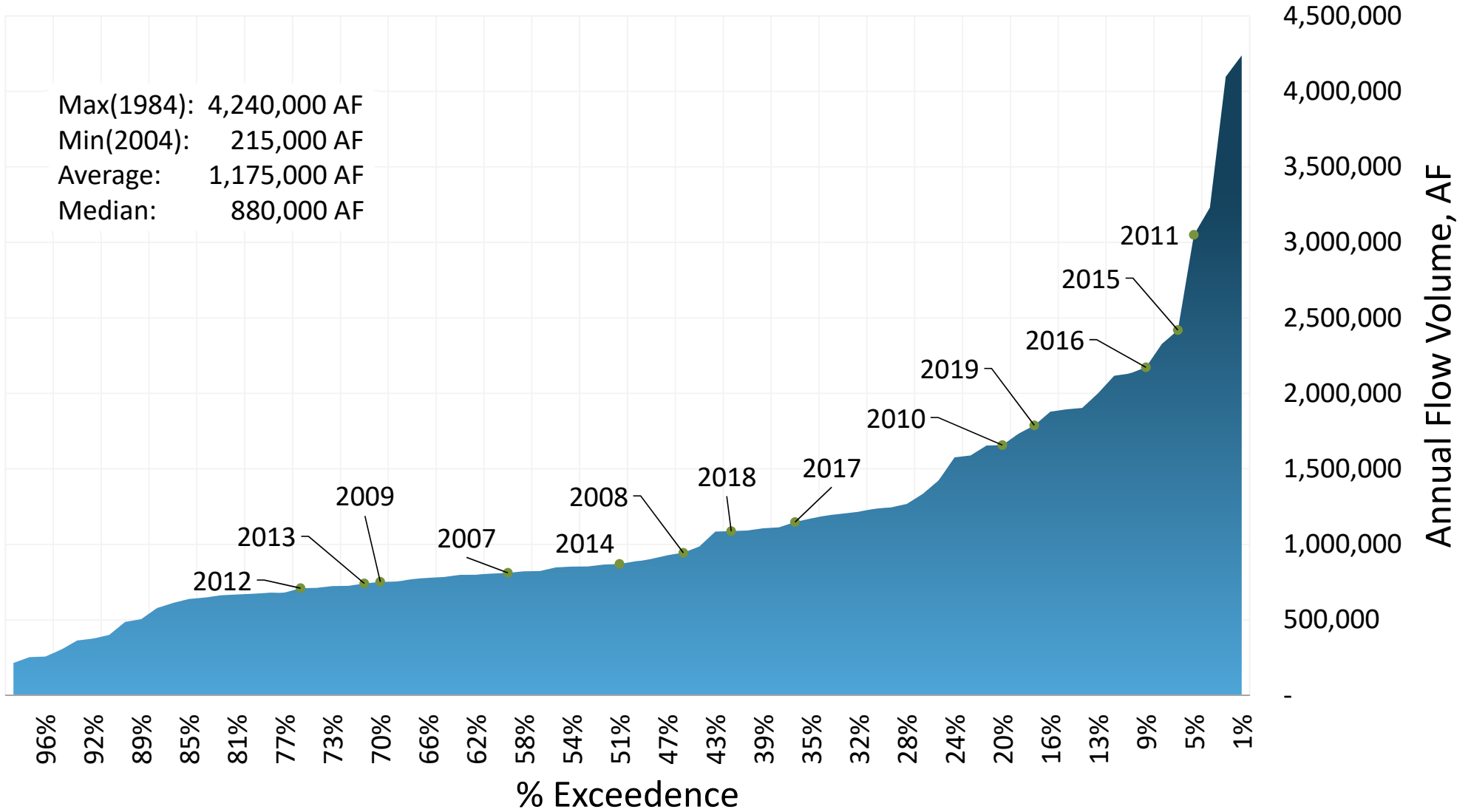
PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Grand Island Annual Average Daily Flow

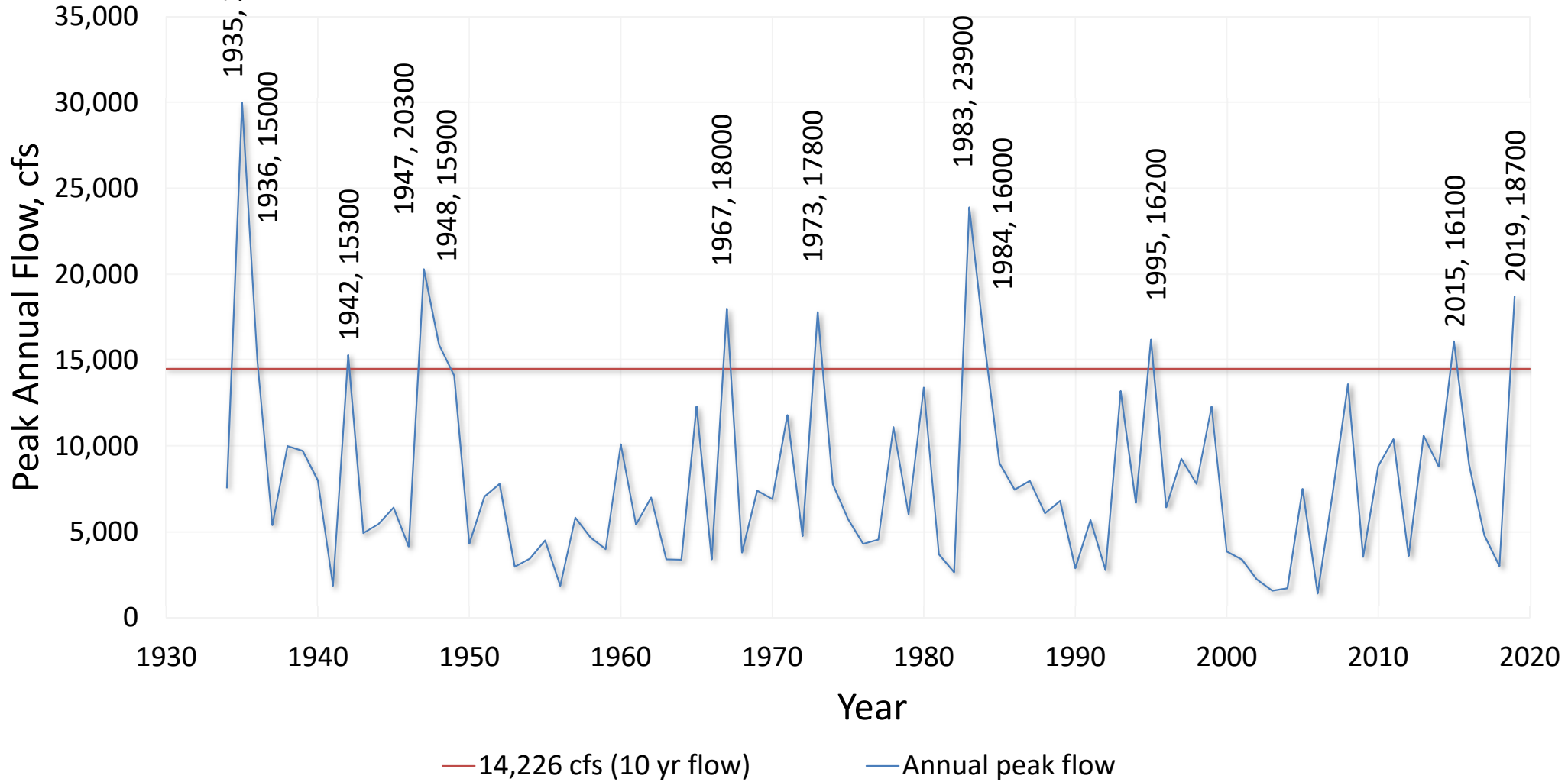


Grand Island Annual Flow Volume

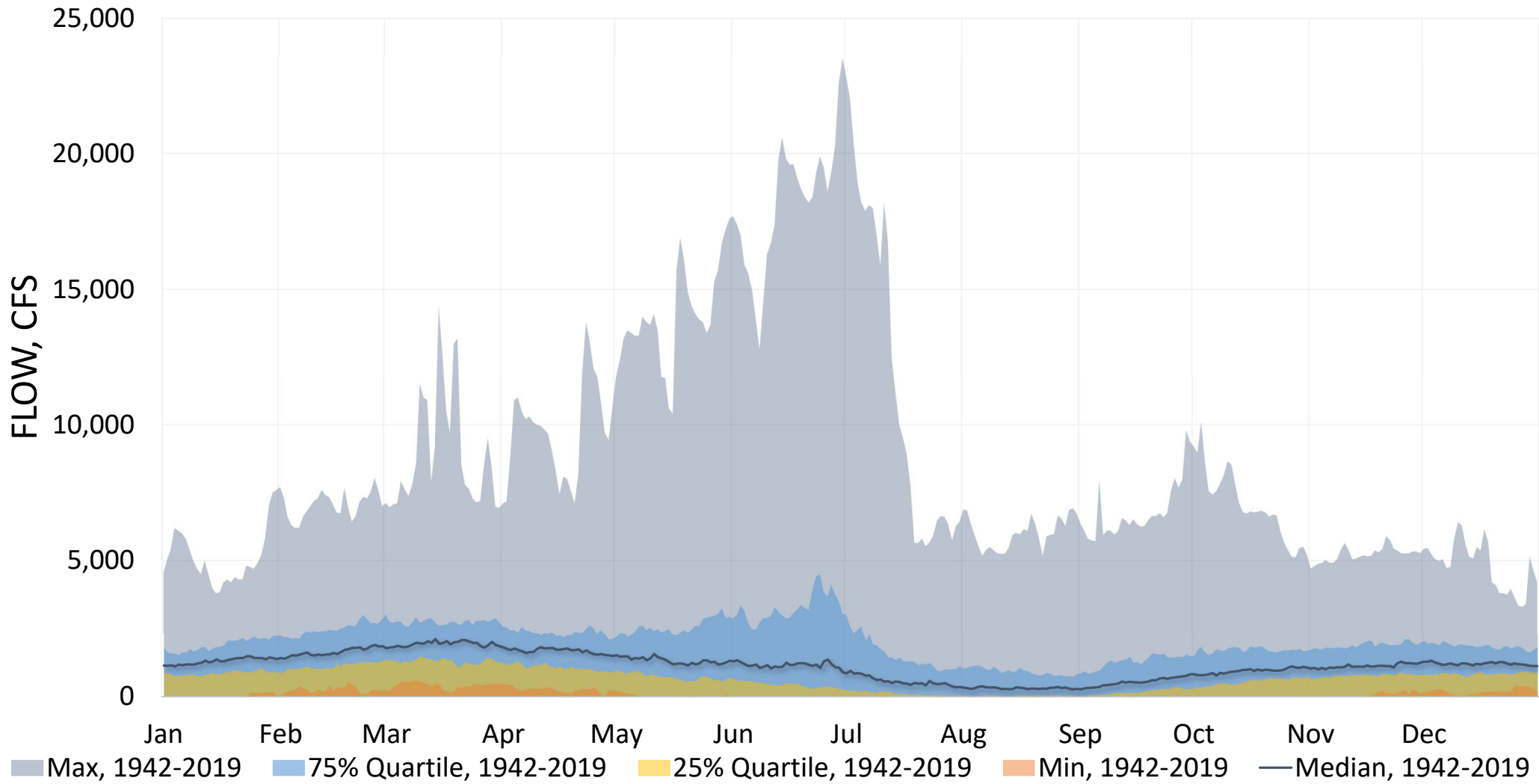
Max(1984): 4,240,000 AF
Min(2004): 215,000 AF
Average: 1,175,000 AF
Median: 880,000 AF



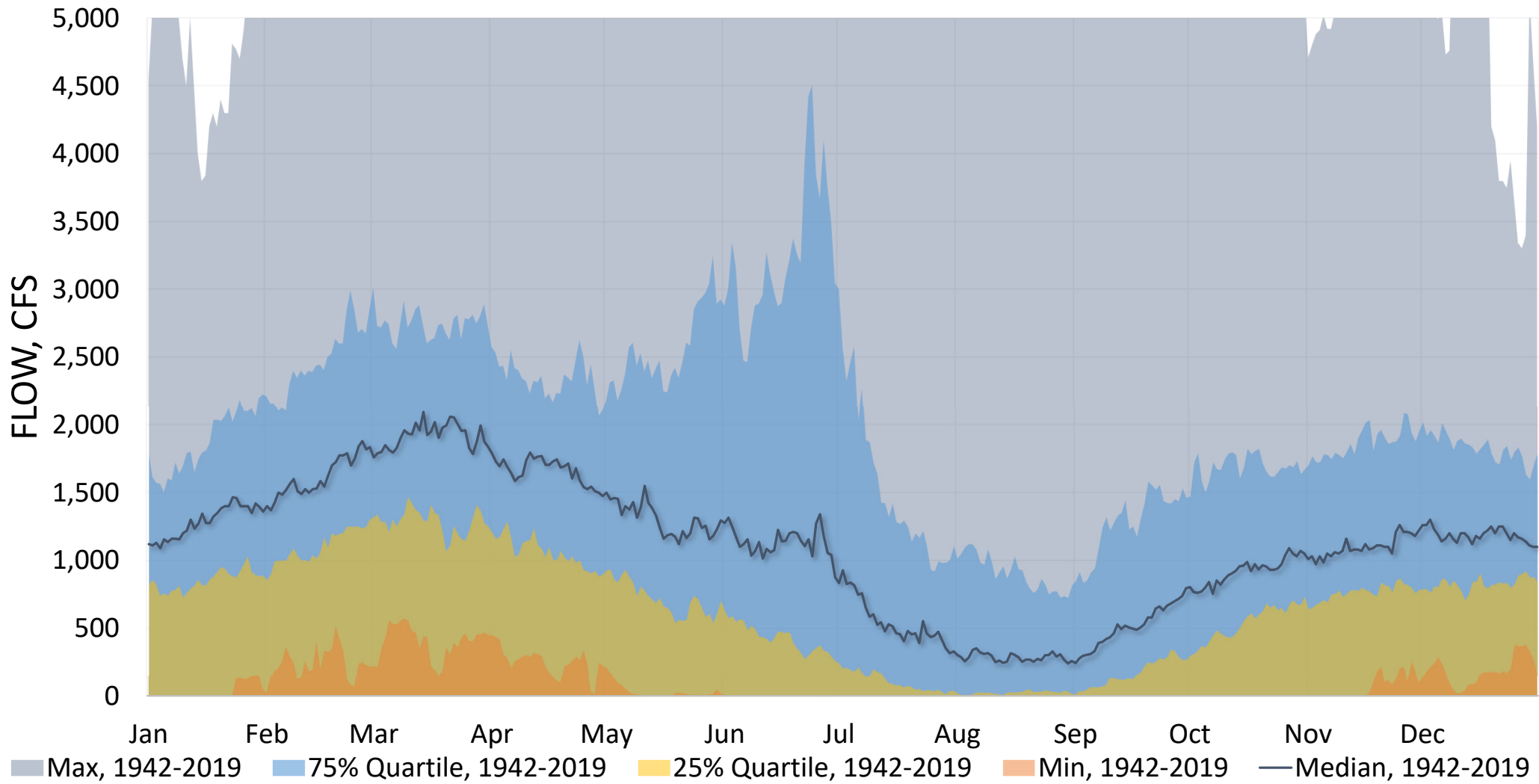
Grand Island Peak Annual Flow



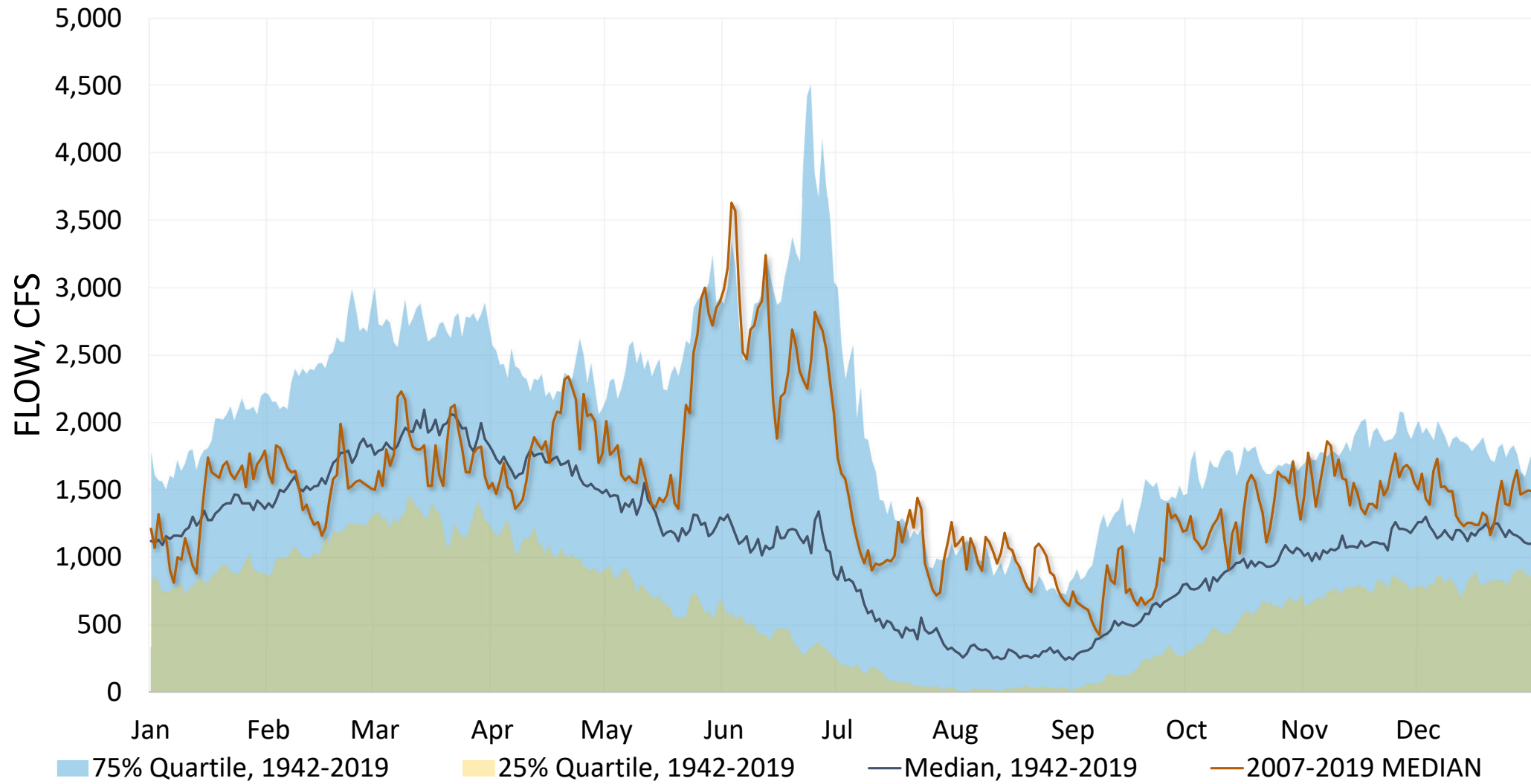
Daily Median Flows at Grand Island



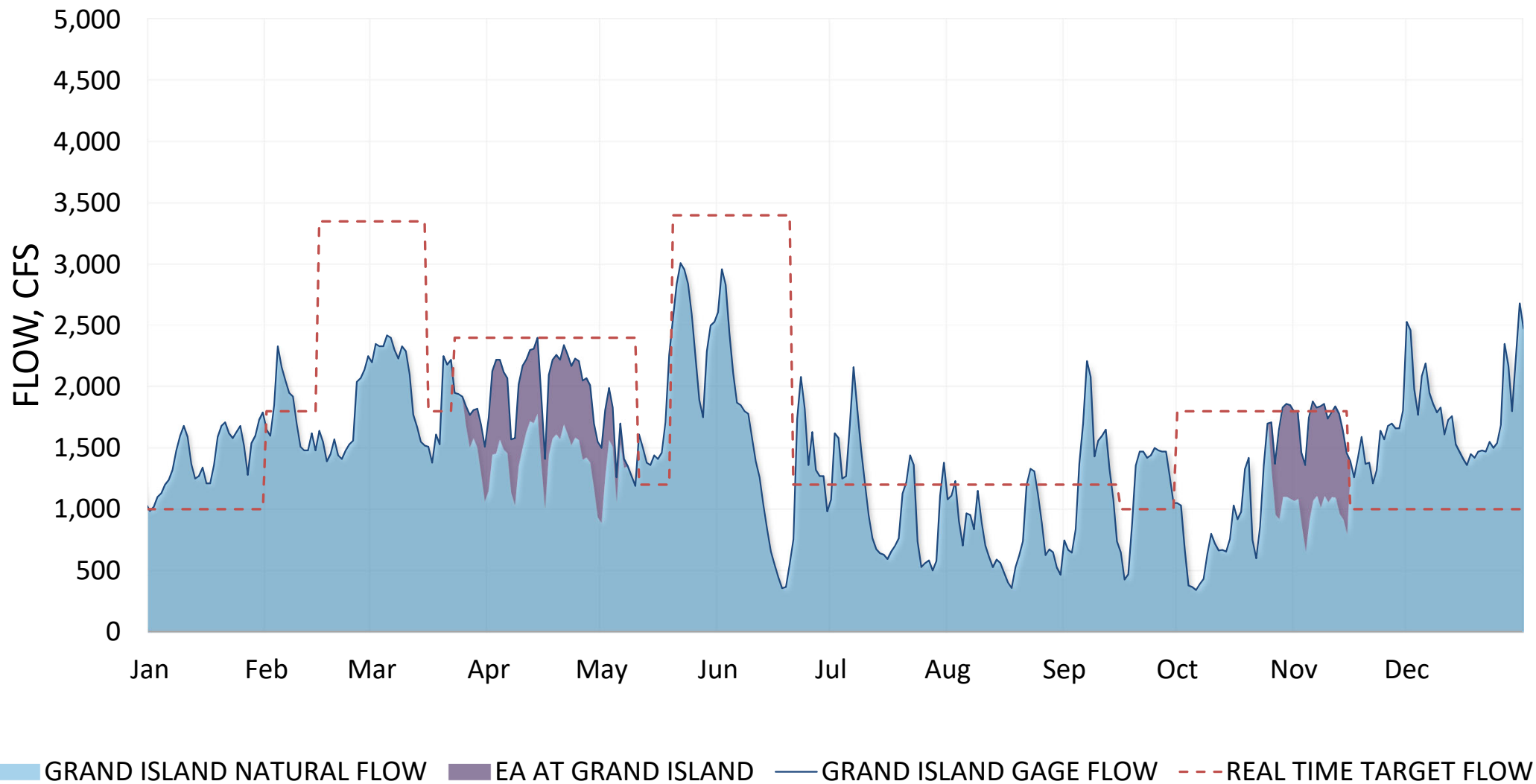
Daily Median Flows at Grand Island



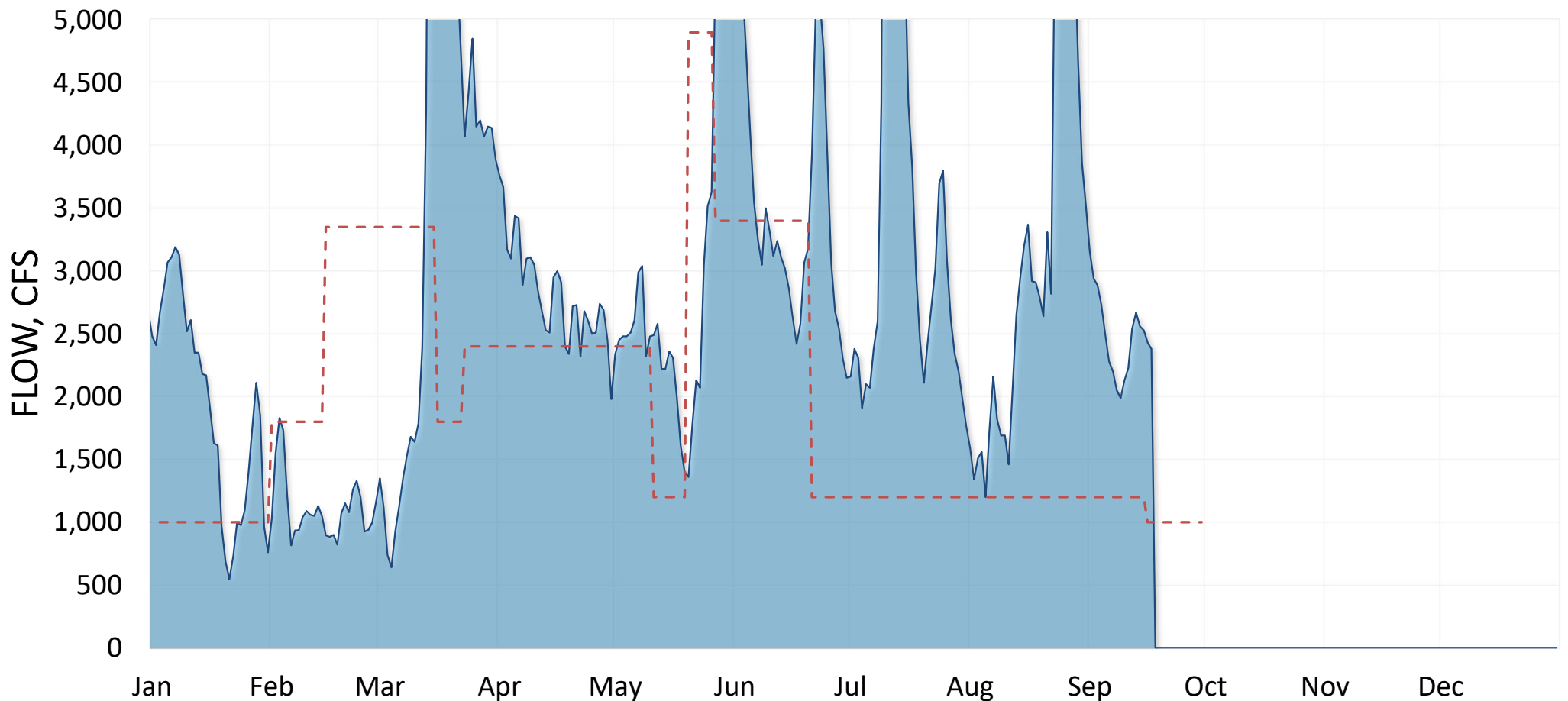
Daily Median Flows at Grand Island



2018 Grand Island Hydrograph and USFWS Target Flows

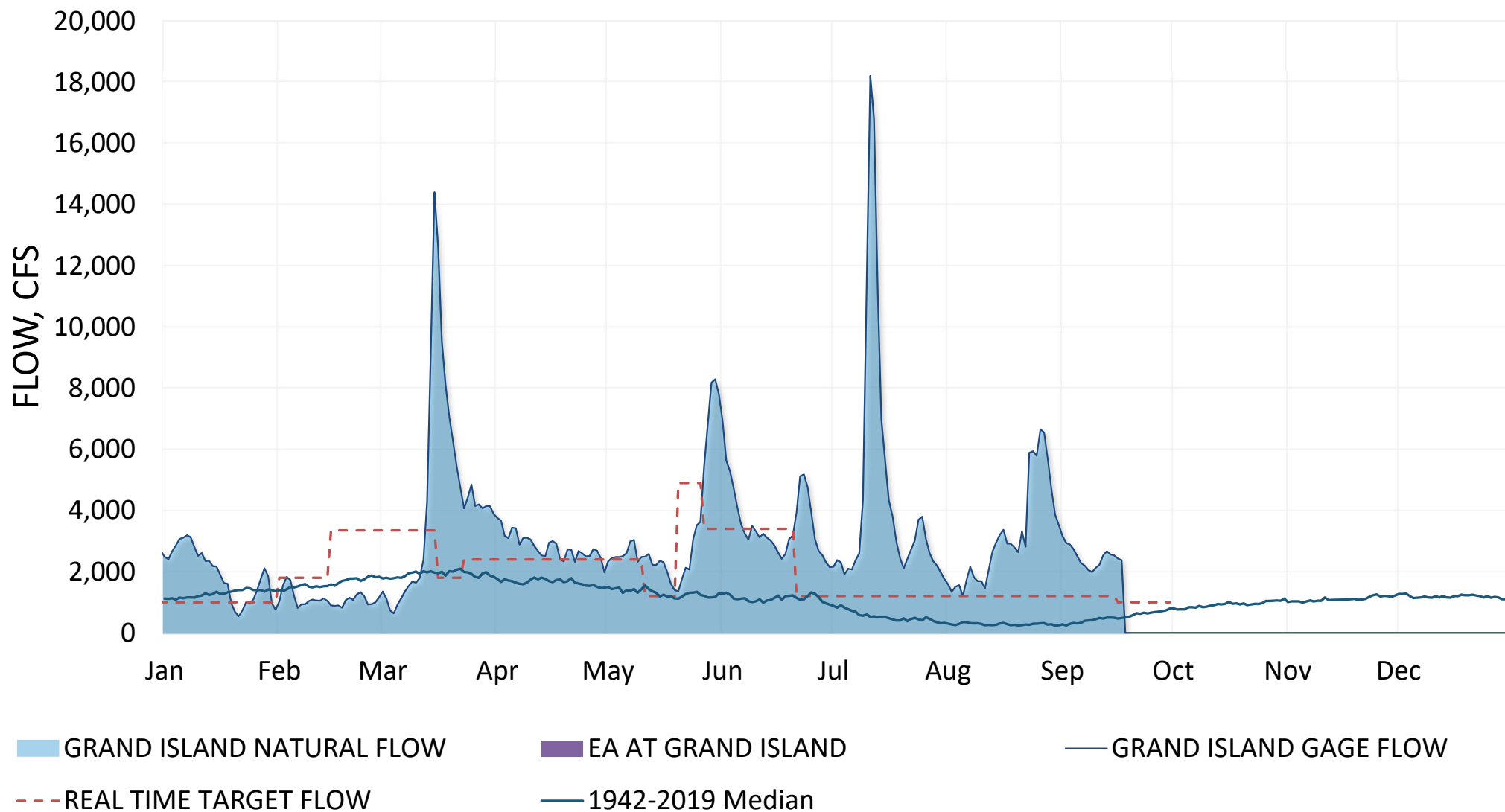


2019 Grand Island Hydrograph and USFWS Target Flows

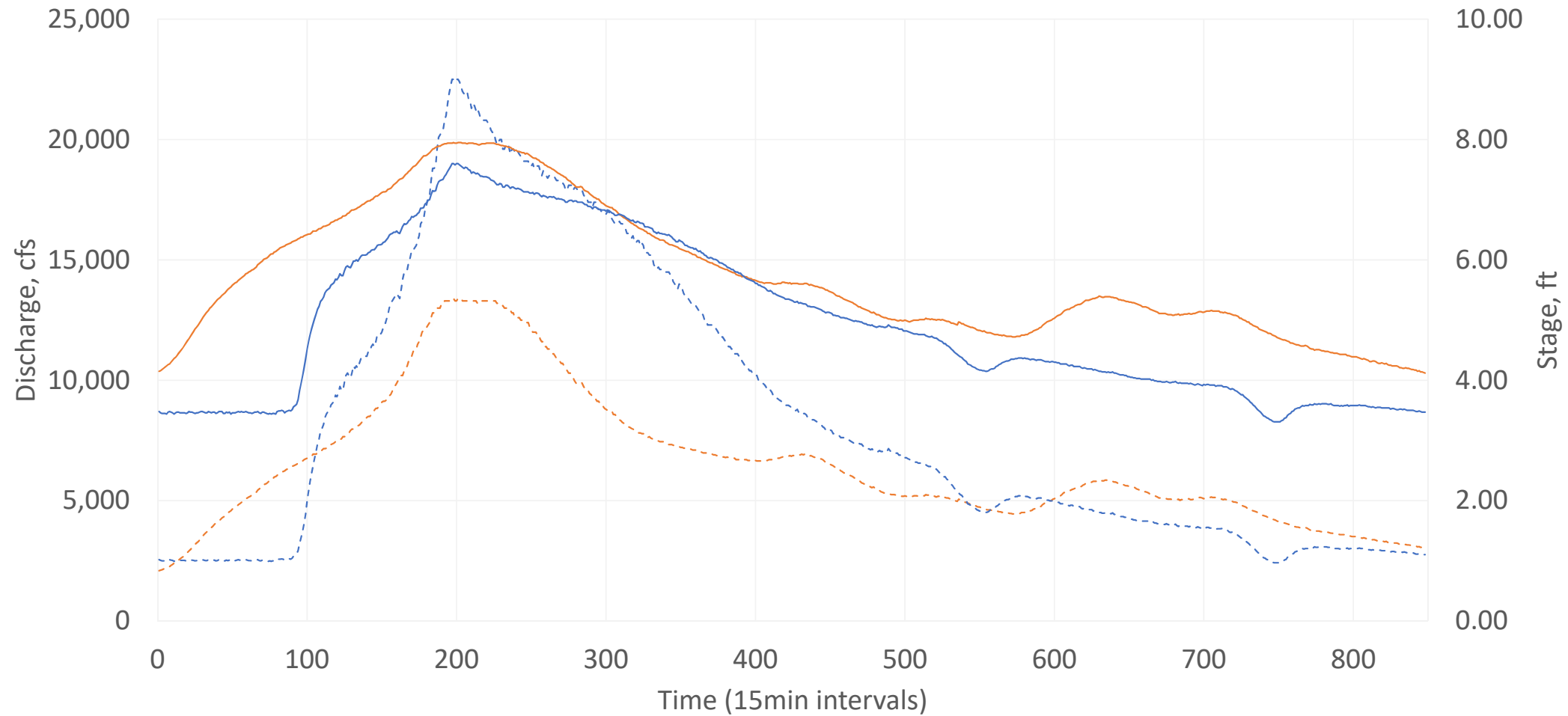


GRAND ISLAND NATURAL FLOW EA AT GRAND ISLAND GRAND ISLAND GAGE FLOW REAL TIME TARGET FLOW

2019 Grand Island Hydrograph and USFWS Target Flows



2008 vs 2019 discharge and stage at USGS Kearney gage



--- 2008 High flow discharge

--- 2019 High flow discharge

— 2008 High flow Stage

— 2019 High flow stage



PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Grand Island Peak Flow Exceedance Probability and Return Period

