GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

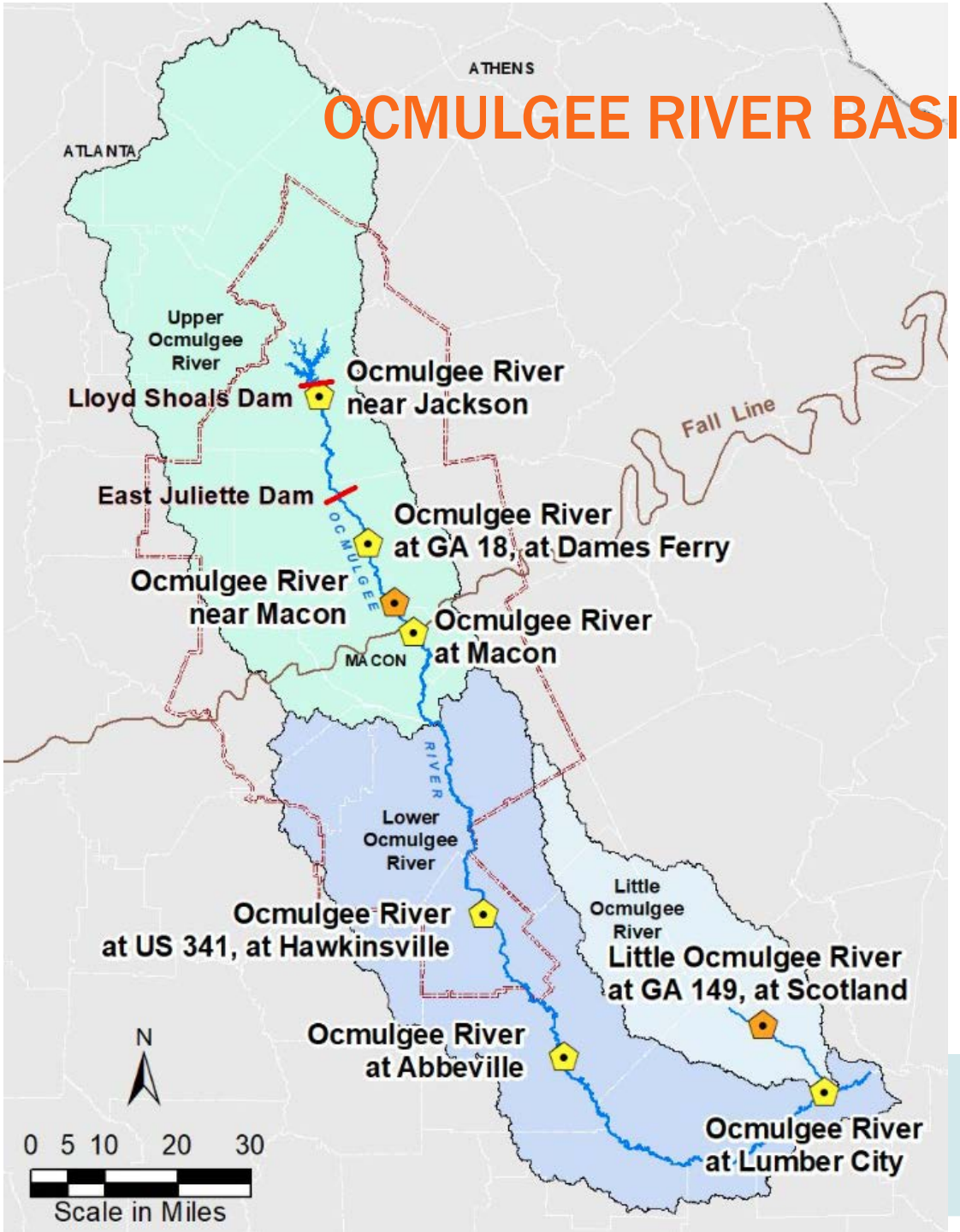
Ocmulgee Basin Flow Regime Pilot Study

June 2019 Summary

COUNCIL RECOMMENDATIONS TO THE STATE:

- "Consider alternative minimum instream flow policy such as stream-specific instream flow values instead of the current monthly 7Q10 requirement (especially for ecologically sensitive streams)."
  - Section 7.4 Recommendations to the State (Table 7-3), Middle Ocmulgee Regional Water Plan, June 2017 (and September 2011 version)

OCMULGEE RIVER BASIN

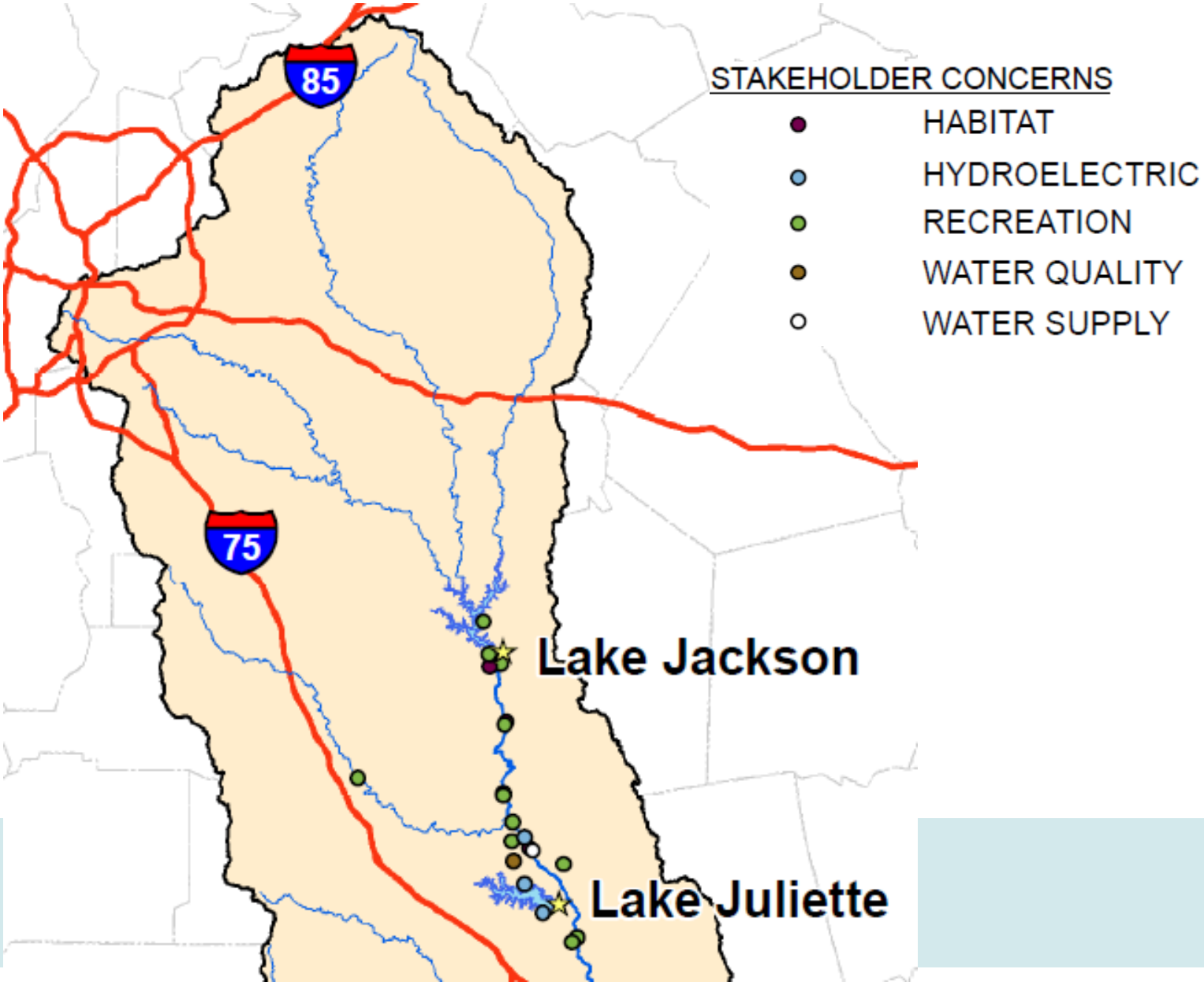


- Red bars – dams
- Pentagons – USGS gages
- Blue lines – Rivers or streams
- Brown curve – Fall line
- Double-dotted line – Region boundary

STUDY APPROACH:

- Determine services provided by the Ocmulgee River – stakeholder input
- Determine linkage between extent of service provided by river to magnitude of flow
- Develop models to quantify the impact on services from change in flow resulting from (for example) future water use

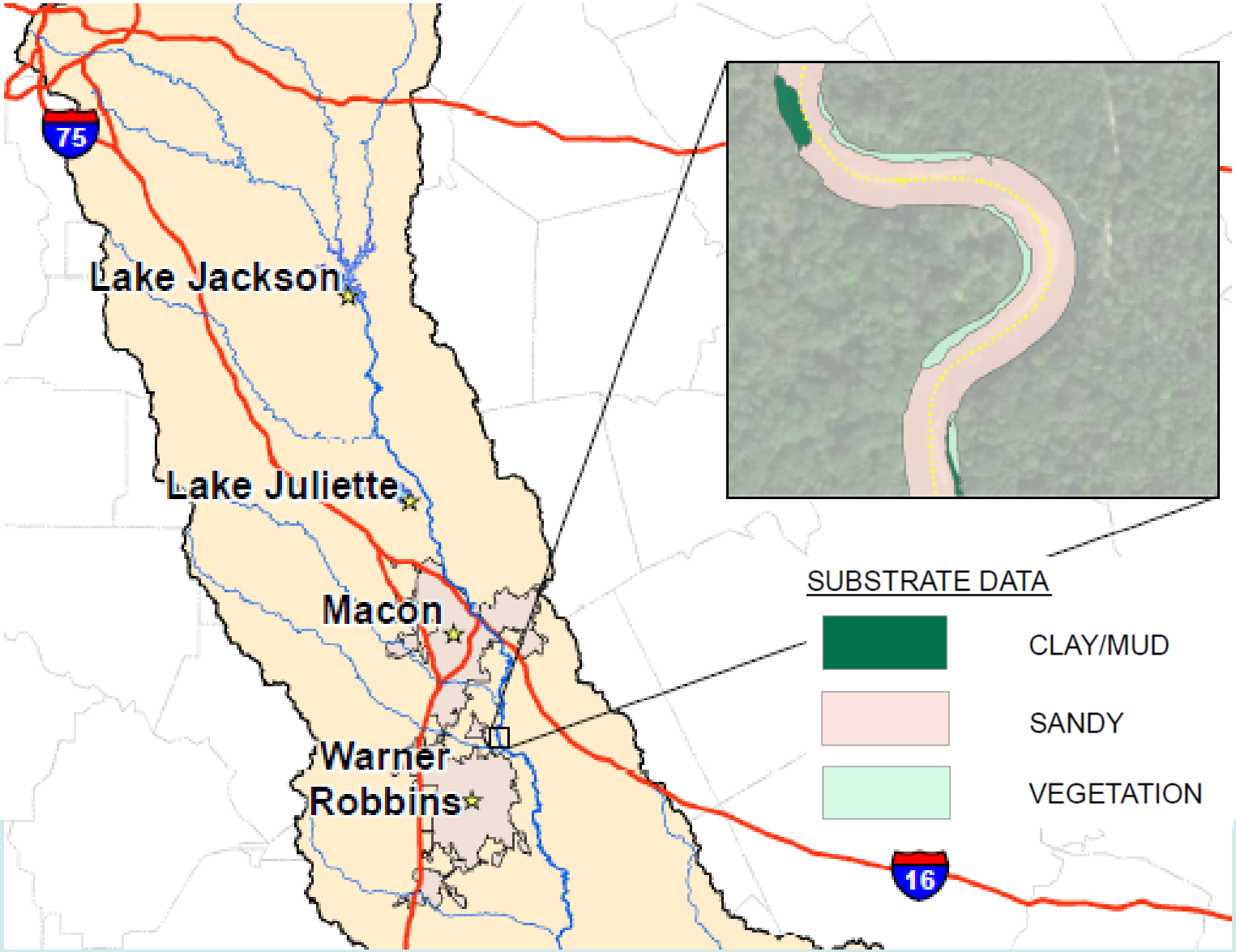
STUDY APPROACH (CONTINUED):



SURVEYS, STUDIES AND REPORTS

- National Wetland Inventory
- NRCS Soil Surveys

STUDY APPROACH (CONTINUED):

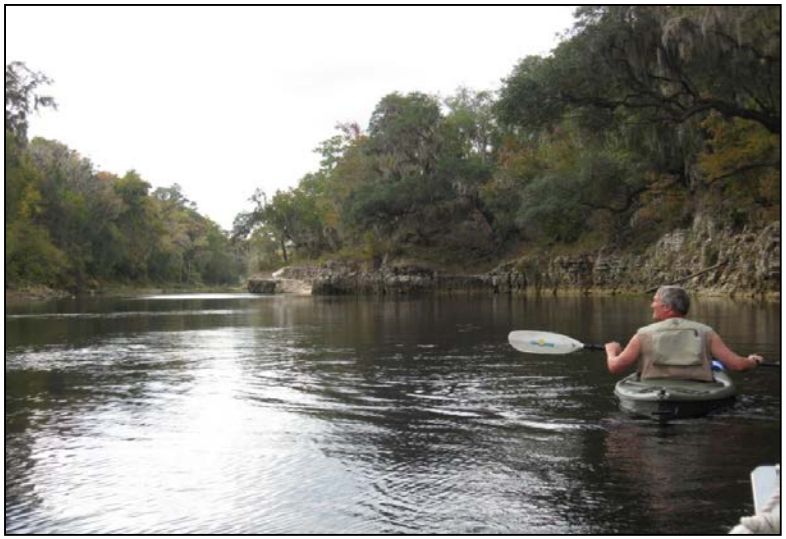


RESULTS

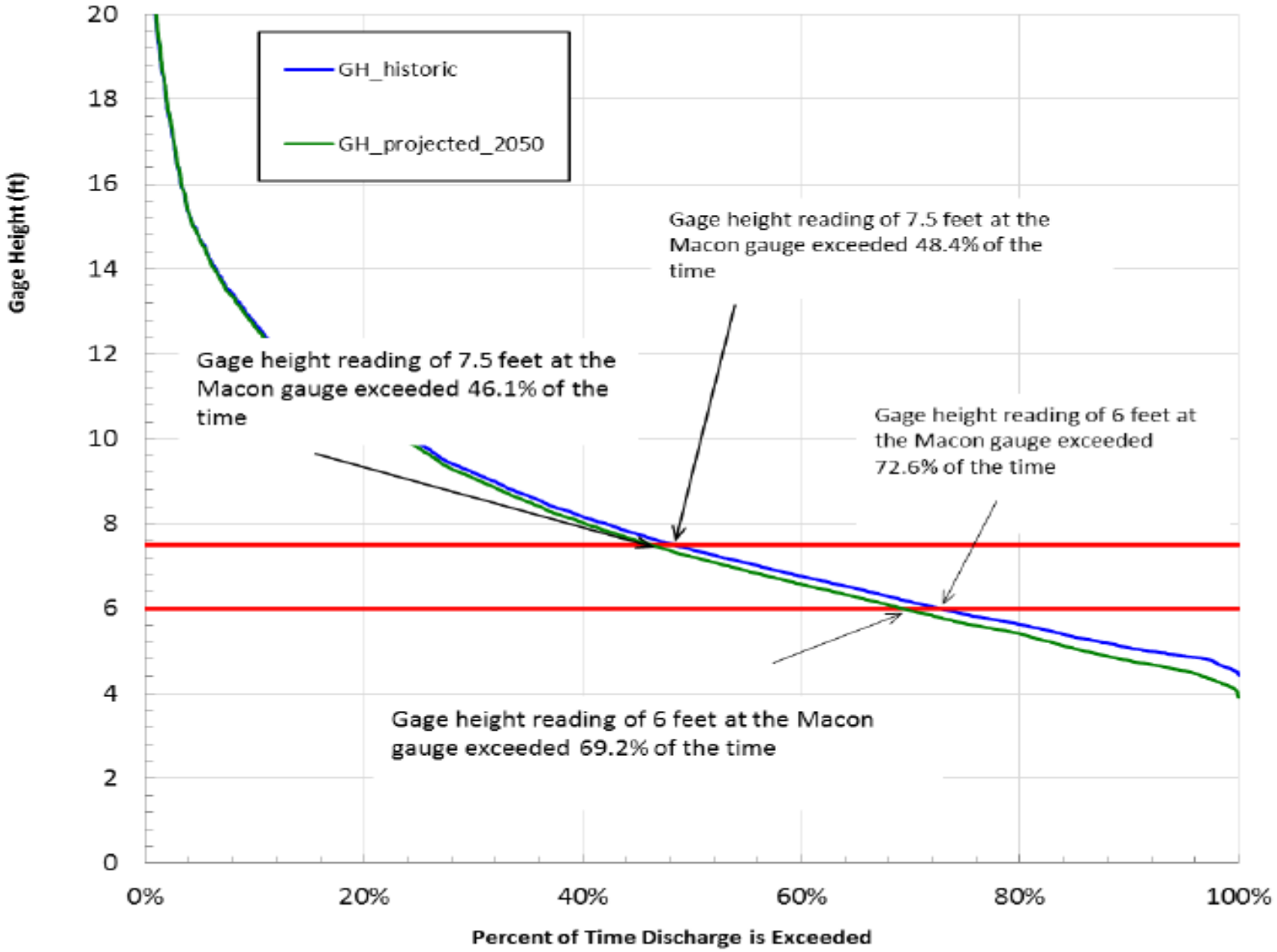
- Recreation
- Aquatic Area-Weighted Suitability (AWS)
- Wetted Perimeter
- Floodplain wetland inundation

RESULTS - RECREATION

- **Assessment of flow-related services**
  - Recreational accessibility – when and for how long, especially under low flow conditions



RESULTS - RECREATION



RESULTS - RECREATION

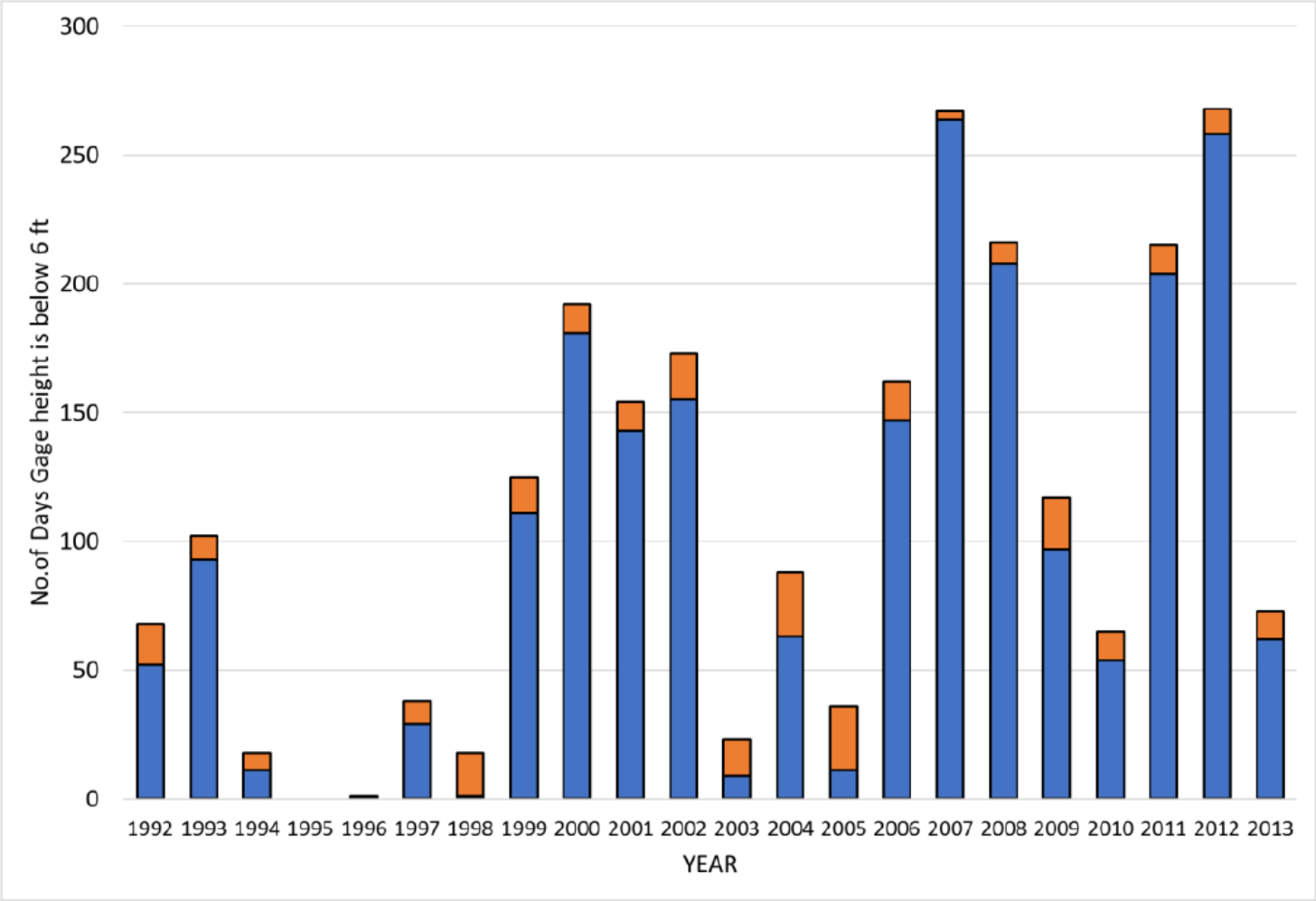
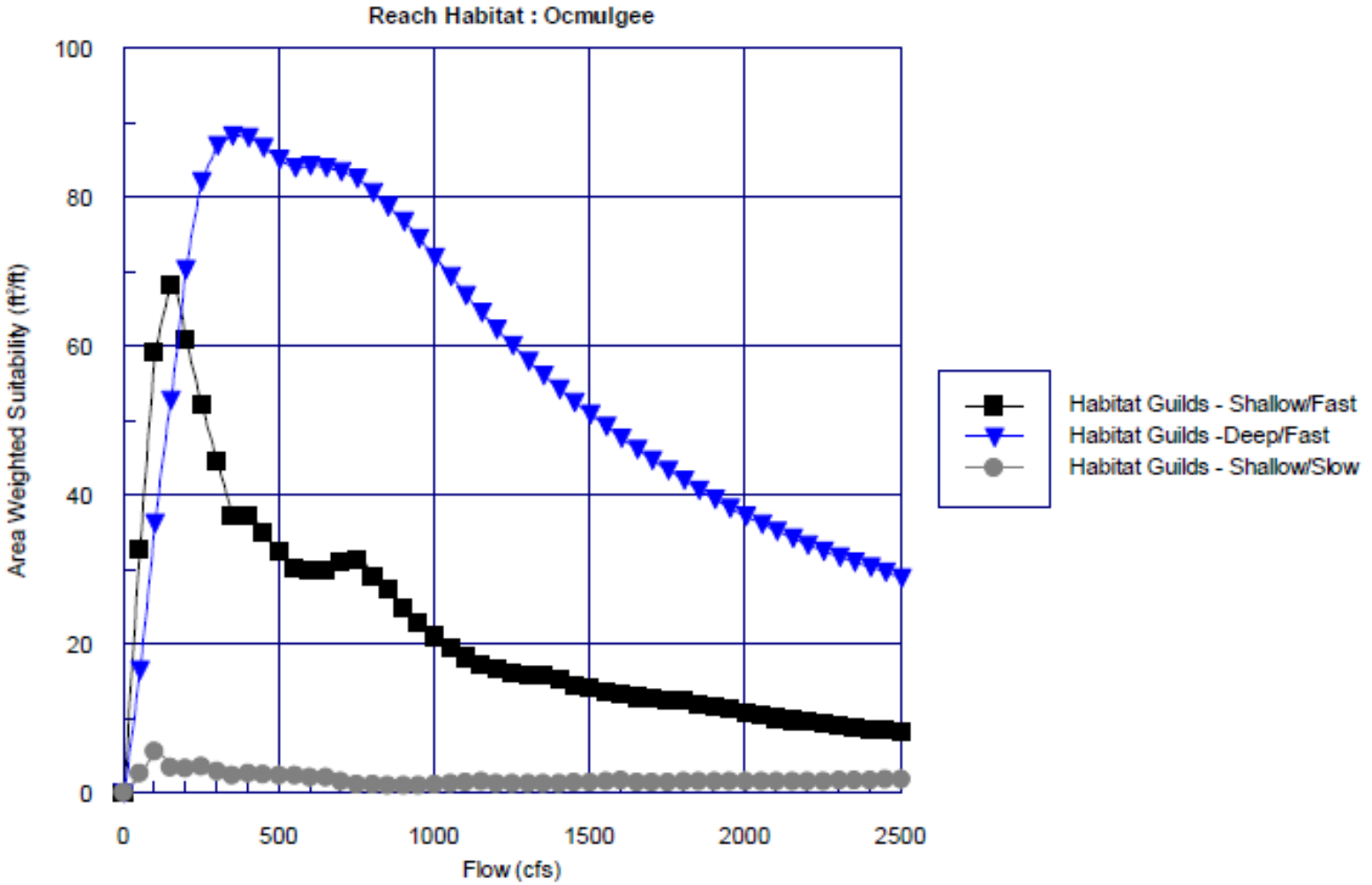


Figure 28. Comparison of annual number of days Macon gage height is below 6 feet for historical and 2050 projected flow conditions. Historical is blue only and 2050 is blue plus orange bars

RESULTS – AQUATIC AREA-WEIGHTED SUITABILITY

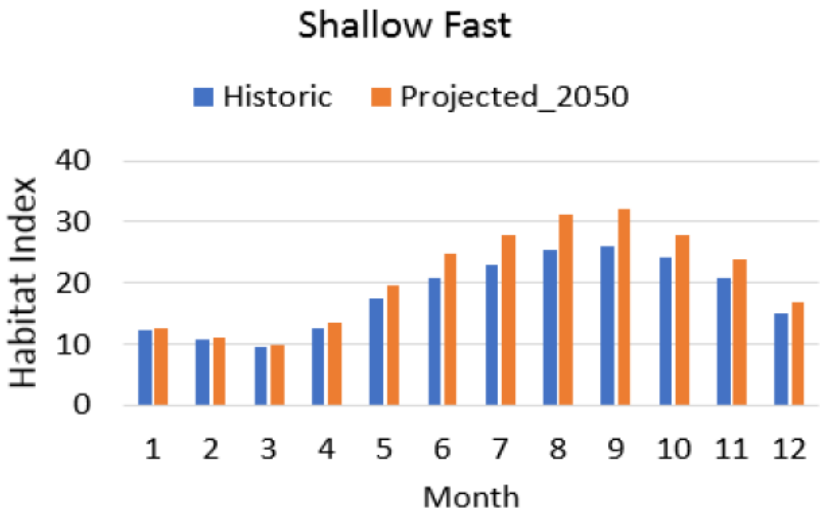


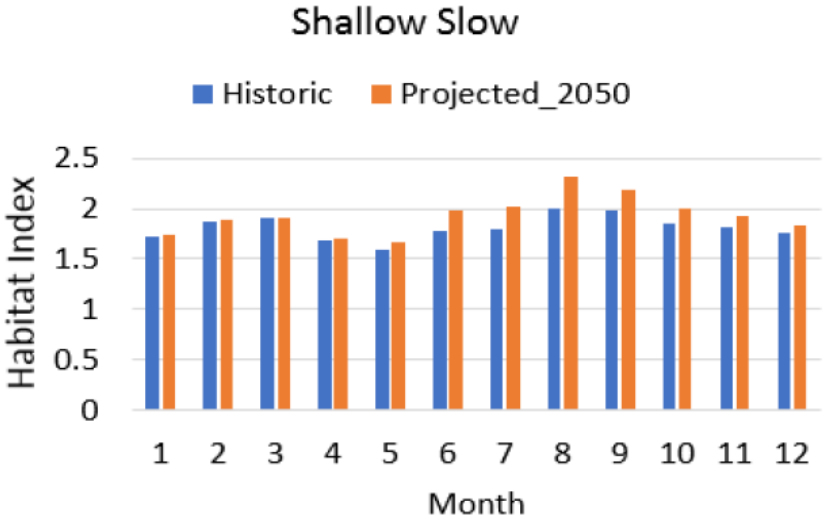
RESULTS – AQUATIC AREA-WEIGHTED SUITABILITY

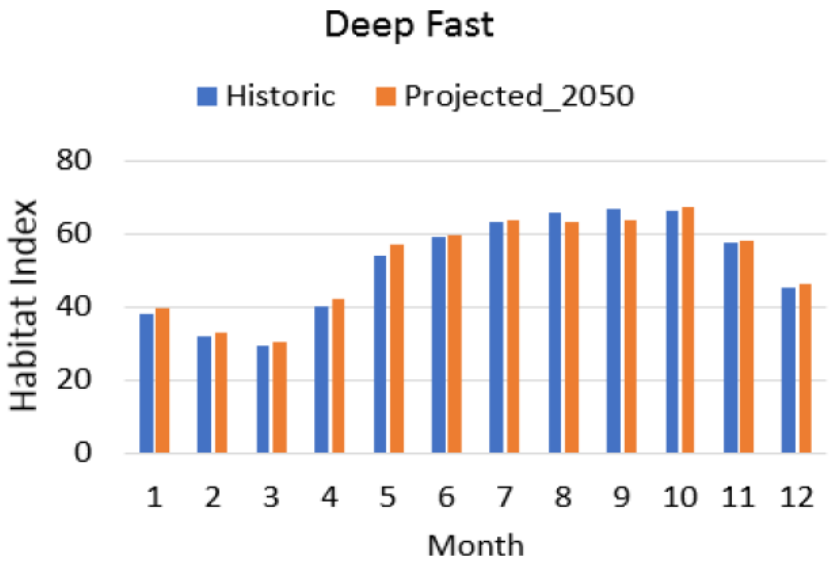
Table 12. Flow regime category and representative taxa

Guild flow regime	Representative taxa
Shallow/Fast (PF3)	*Nocomis leptocephalus* (bluehead chub) *Notropis hudsonius* (spottail shiner)
Deep/Fast (PF4)	*Micropterus Salmoides* (largemouth bass)
Shallow/Slow (PF5-2)	*Lepomis* (bluegill and sunfish)

RESULTS – AQUATIC AREA-WEIGHTED SUITABILITY

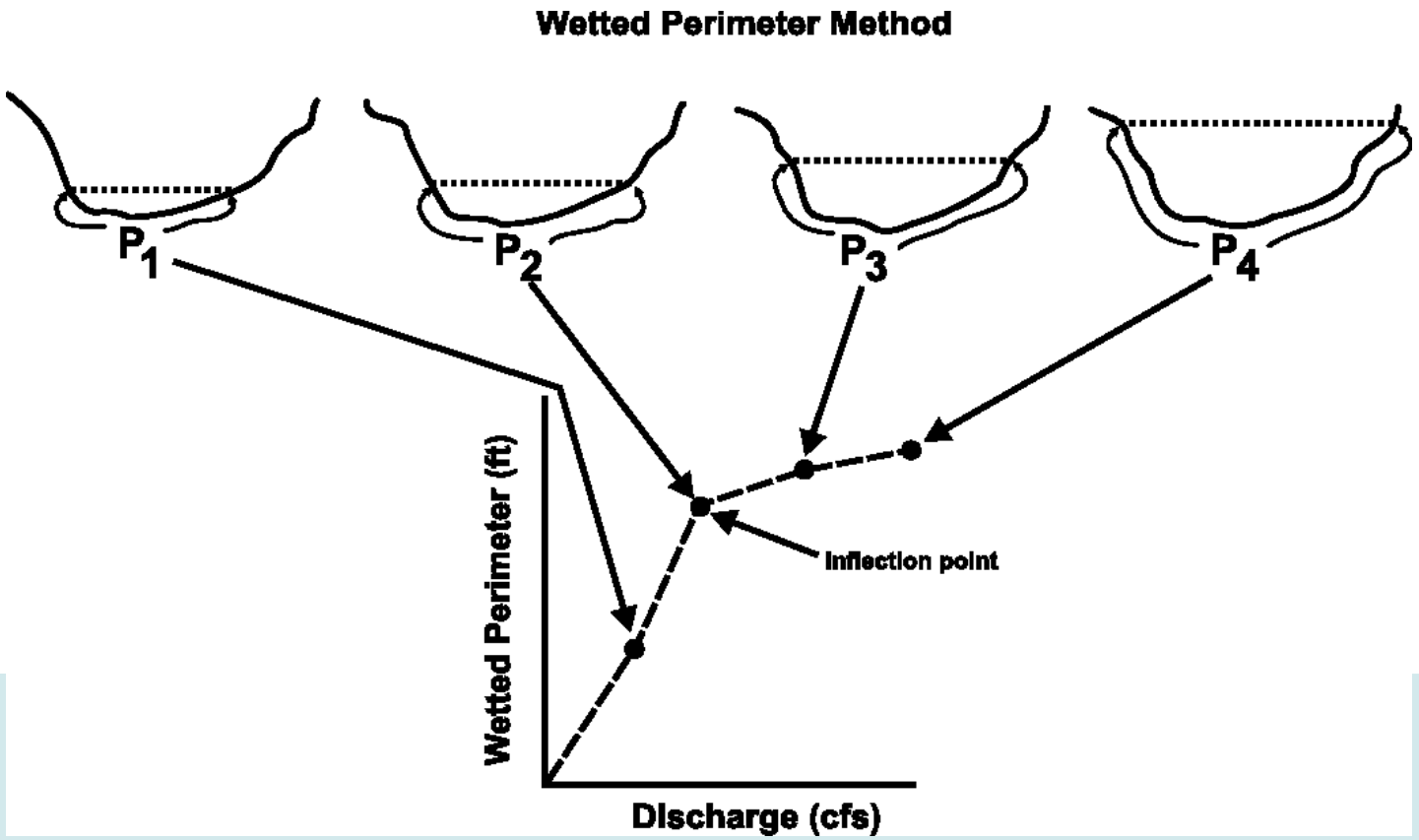




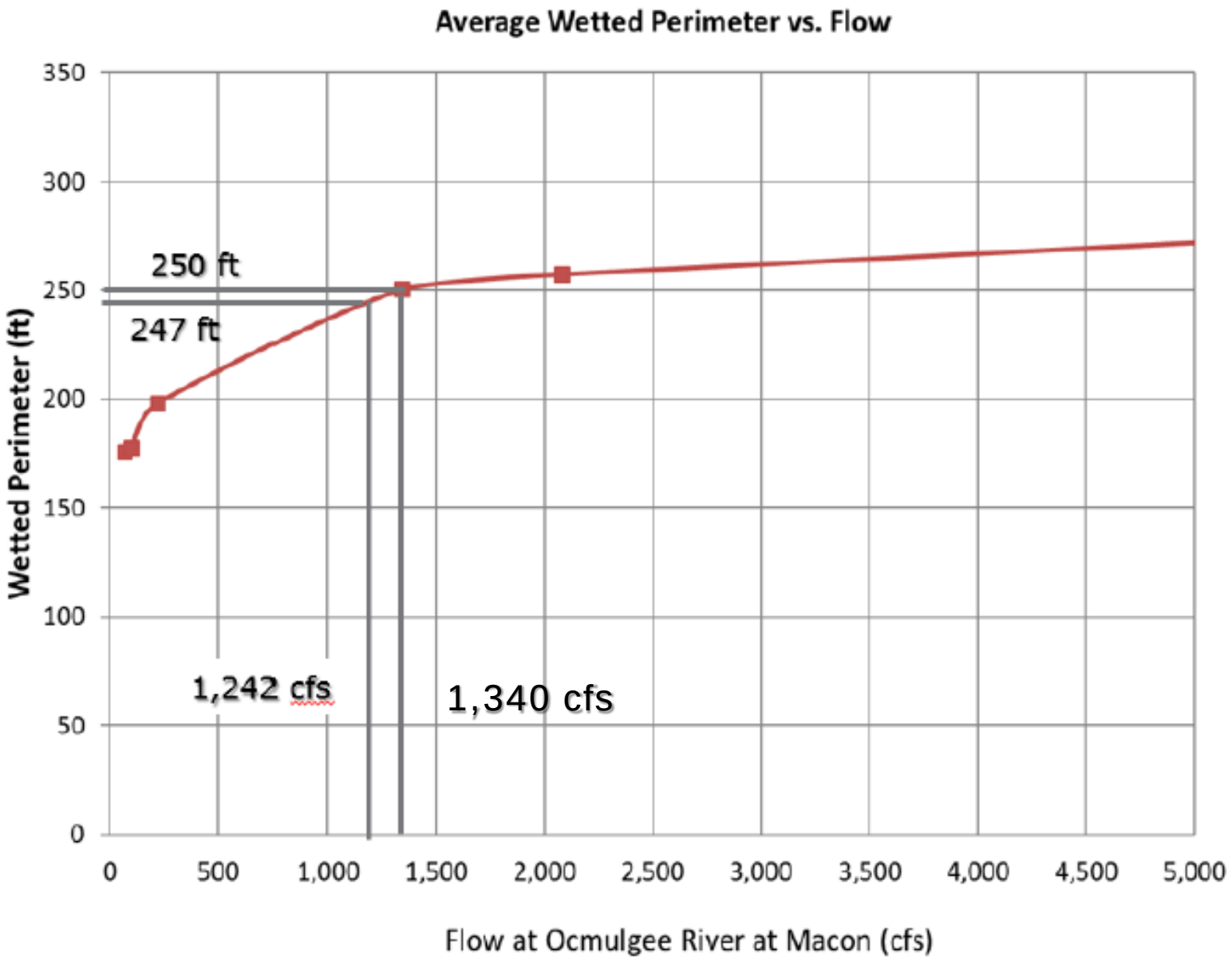


RESULTS – WETTED PERIMETER

- **Assessment of flow-related services**
  - Wetted perimeter – an indicator of available aquatic habitat

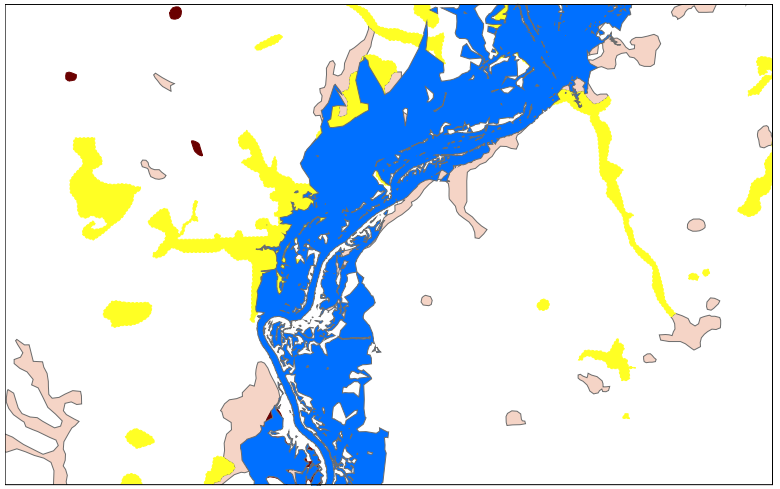


RESULTS – WETTED PERIMETER

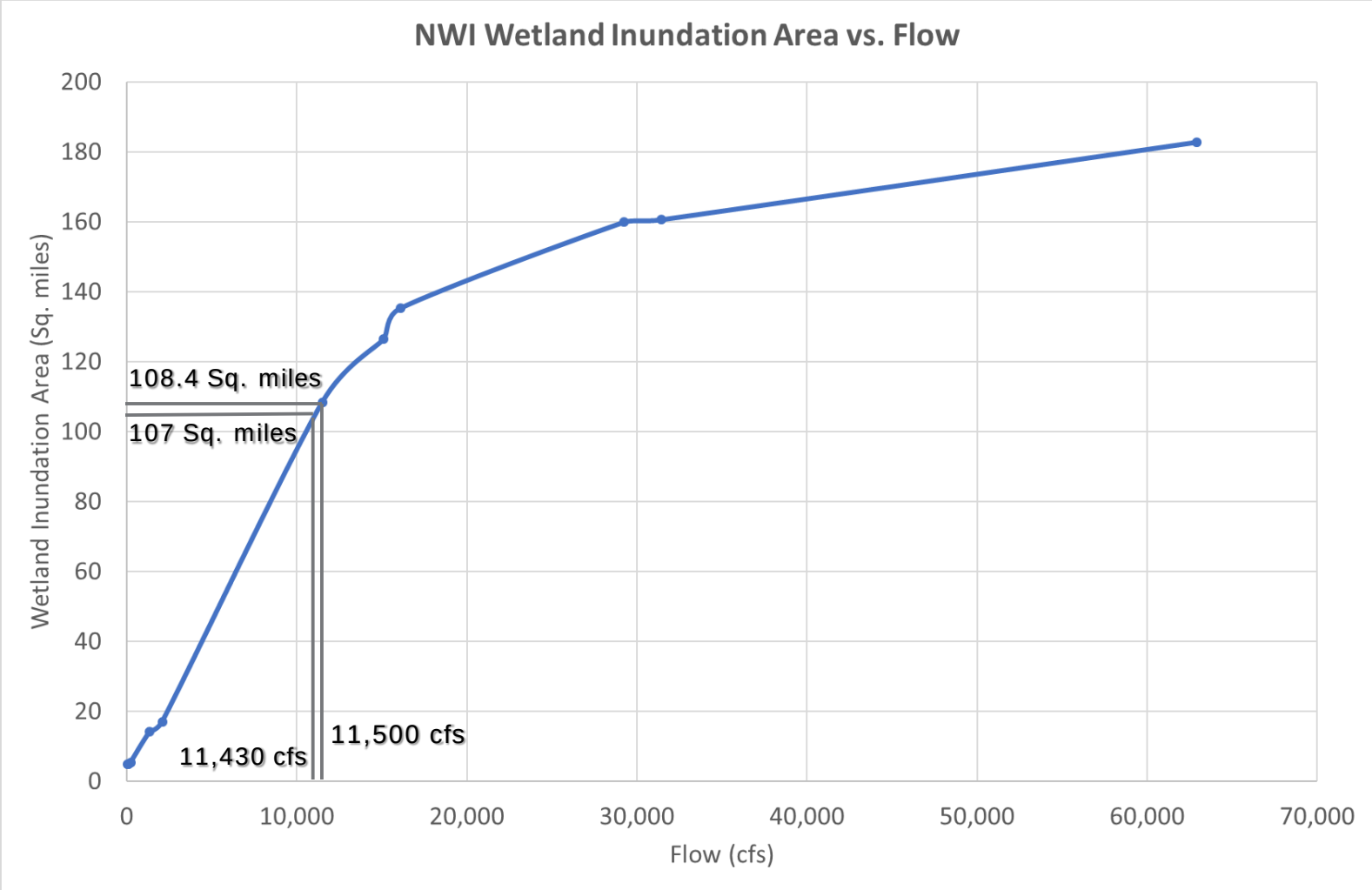


RESULTS – WETLAND INUNDATION

- **Assessment of flow-related services**
  - Wetland inundation – when and for how long, especially under high-flow conditions



RESULTS – WETLAND INUNDATION



RESULTS – SUMMARY

River service	Service metric	Historical average value (1992-2013)	Projected 2050-average value (1992-2013)
Recreation (Paddling)	Paddling during low water conditions (Stage < 6 feet)	88 non-viable days	98 non-viable days
Recreation (Boating)	Paddling during low water conditions (Stage < 7.5 feet)	192 non-viable days	197 non-viable days
Instream aquatic habitat	AWS index (Shallow Fast, Shallow Slow, Deep Fast)	Monthly average AWS indexes ranging from: 9.6 – 26 (Shallow Fast) 1.6 – 2.0 (Shallow Slow) 29 – 66 (Deep Fast)	Monthly average AWS indexes ranging from: 9.9 – 32 (Shallow Fast) 1.7 – 2.3 (Shallow Slow) 30 – 67 (Deep Fast)
	Macon site habitat area (Bhattacharjee, 2017)	Monthly average area (acres) ranging from: 0.2 – 1.3 (Shallow Fast) 5.0 – 10 (Shallow Slow) 13 – 35 (Deep Fast)	Monthly average area (acres) ranging from: 0.2 – 1.3 (Shallow Fast) 5.2 – 10.3 (Shallow Slow) 12 – 34 (Deep Fast)
Instream bottom and channel-side habitat	Frequency of exceeding wetted perimeter threshold Wetted perimeter (feet)	54% 250 at 1,340 cfs	51% 247 at 1,242 cfs
Floodplain wetland habitat	Wetland inundation area (square miles) Frequency of exceeding floodplain inundation threshold	108.4 square miles at 11,500 cfs 2.7%	107 square miles at 11,430 cfs 2.7%

NEXT STEPS AND EXPECTATIONS:

- Council to use these additional tools to consider relative impacts in its Regional Water Planning process, perhaps with help from experts on river services

IMPORTANT CONSIDERATIONS

- This pilot project has established a framework under which tools have been developed and new tools can/will be developed to address stream-specific or site-specific river services and impacts to such

- Additional collection of data may improve tools for more reliable results.
  - River bathymetry of higher density
  - Species-specific habitat

QUESTIONS

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