RESPONSES TO INDEPENDENT SCIENTIFIC PEER REVIEW OF THE RECOMMENDED MINIMUM FLOWS FOR THE MIDDLE ECONFINA CREEK, INCLUDING GAINER SPRING, WILLIFORD SPRING, AND SYLVAN SPRING GROUPS

Prepared by:

Northwest Florida Water Management District

March 2025

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INTRODUCTION

The Northwest Florida Water Management District (District) has been tasked with establishing minimum flows for surface watercourses (springs, rivers, etc.) and minimum water levels (MFLs) for surface waters (lakes) and aquifers located within its boundaries (Section 373.042, Florida Statutes). This program requires that MFLs be set in order to prevent "significant harm" to waters located within the District. Section 373.042 (1), Florida Statutes, provides that "The minimum flow for a given water body is defined as the limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area."

Section 373.042 (1), Florida Statutes, provides requirements for establishing MFLs. MFLs are to be established using the "best available information." In accordance with Rule 62-40.473, Florida Administrative Code and Section 373.0421, Florida Statutes, the District considered natural seasonal fluctuations in water flows or levels, non-consumptive uses, structural alterations, and multiple environmental values (WRVs), when developing the minimum flows.

If flows are below established minimum flows or are projected to fall below minimum flows within 20 years, water management districts are required to develop and implement either a recovery or prevention strategy, respectively. A recovery strategy is required when a system is currently not meeting MFL criteria, while a prevention strategy is required if the MFL is expected to not be met during the following 20 years based on projected withdrawals. Prevention/recovery strategies may include water conservation measures and additional water supply or water resource development projects.

The District performed a technical assessment to determine recommended minimum flows for the Middle Econfina Creek, including the Gainer Spring, Williford Spring, and Sylvan Spring groups located in Washington and Bay counties, Florida. The District voluntarily submitted the draft technical assessment report for independent scientific peer review under Florida Statute 373.042 (5). Tetra Tech was contracted by the District to assemble subject matter experts (Peer Reviewers) to conduct an independent technical peer review of the draft MFL technical assessment report for the Middle Econfina Creek. The Peer Review was completed in March 2025. This document provides the District's responses to the Peer Review comments.

SCOPE OF PEER REVIEW

The contractor (Tetra Tech), with the assistance of three subject matter experts, evaluated the data, analyses, models and methodologies used by the District to determine the proposed minimum flow(s) for the Middle Econfina Creek. In so doing, Tetra Tech completed the following tasks and included responses or comments on each task in a written Peer Review Form provided to the District. Responses and comments by the Peer Reviewers were presented collectively in a written report developed by the Peer Review Panel Chairperson.

Tasks for Peer Reviewers:

1. Supporting Data and Information: Review the data and information that supports the conclusions made in the report to determine:
   a. The data and information used were properly collected,
   b. Reasonable quality assurance assessments were performed on the data and information,
   c. Exclusion of available data from the analyses was justified, and
   d. The data used was the best information available.

   Note: The PEER REVIEWERS are not to provide independent review of standard operating procedures used as part of institutional programs that have been established for the purpose of collecting data, such as the U.S. Geological Survey (USGS) and the DISTRICT's hydrologic monitoring network.

2. Technical Assumptions: Review the technical assumptions inherent to the analysis used in the MFL report to determine whether:
   a. The assumptions are clearly stated, reasonable and consistent with the best information available; and
   b. Other analyses that would require fewer assumptions but provide comparable or better results are available.

3. Procedures and Analyses: Review the procedures and analyses used in the MFL report to determine whether:
   a. The procedures and analyses were appropriate and reasonable, based on the best information available,
   b. The procedures and analyses incorporate all necessary factors,
   c. The procedures and analyses were correctly applied,
   d. The limitations and imprecision in the information were reasonably handled,
   e. The procedures and analyses are repeatable,
   f. Conclusions based on the procedures and analyses are supported by the data, and
   g. Determine if the methods used in establishing the MFL are scientifically reasonable. If a proposed method used in the MFL report is not scientifically reasonable, the PEER REVIEWERS shall:
      1. List and describe scientific deficiencies and, if possible, describe potential implications of the error associated with the deficiencies.
      2. Determine if any identified deficiencies can be remedied:
         a. If the identified deficiencies can be remedied, then describe the necessary remedies and, if possible, provide an estimate of the time and effort required to develop and implement each remedy.
         b. If the identified deficiencies cannot be remedied, then, if possible, identify one or more alternative methods that are practical, cost-effective, and scientifically reasonable. If an alternative method is identified, provide a qualitative assessment

of the relative strengths and weaknesses of the alternative method(s) and the effort required to collect data necessary for implementation of the alternative methods.

Tetra Tech and the Peer Reviewers acknowledged the statutory constraints and conditions (Sections 373.042 and 373.0421, Florida Statues and Chapter 62-40.473 Florida Administrative Code) affecting the District's development of MFLs. Tetra Tech and the Peer Reviewers also acknowledged that review of certain assumptions, conditions, and established legal and policy interpretations of the Governing Board was not included in the Scope of Work. These items included:

1- The selection of waterbodies or aquifers for which minimum levels are proposed to be set;
2- The definition of what constitutes "significant harm" to the water resources or ecology of the area;
3- The consideration given to changes and structural alterations to watersheds, surface waters, and aquifers, and the effects and constraints that such changes or alterations have had or placed on the hydrology of a given watershed, surface water, or aquifer; and
4- The method(s) used by other Districts or agencies for establishing MFLs for other waterbodies and aquifers.

The Peer Review Panel received a draft MFL report document titled, "Recommended Minimum Flows for the Middle Econfina Creek, including Gainer Spring, Sylvan Spring, and Williford Spring Groups" on February 3, 2025. The report included the main report and two appendices. The District and Peer Review Panel participated in an MFL Peer Review Kickoff meeting on February 5, 2025. This meeting consisted of a presentation by the District on the MFL background, methodology, and results; in addition to a question and answer session where Peer Reviewers could ask the District questions about the presentation and MFL report.

The Peer Review Panel was given 25 days to review the draft MFL document and provide the District with a draft Peer Review Report which included a concise review of the data, methodologies, and models used in the MFL Technical Assessment for the Middle Econfina Creek. In addition, the collective scientific opinions of the Peer Review Panel were summarized and completed Peer Review Forms for each Peer Reviewer were provided. The District met with the Peer Review panel on March 5, 2025, to discuss the comments and allow the District an opportunity to ask questions for clarification regarding the peer review comments. Draft Peer Review comments were provided to the District on February 28, 2025. The draft Peer Review Report was provided to the District on March 14, 2025. The District reviewed the report and provided Tetra Tech with clarifications regarding some items and requests for clarification of specific peer review comments. A final version of the Peer Review Report was provided to the District on March 24, 2025.

PEER REVIEW FORMS AND DISTRICT RESPONSES

Completed Peer Review forms from each Peer Reviewer are included below along with District responses to each comment. Column A: "PEER REVIEWERS Specific Comments" and Column B: "PEER REVIEWERS specific remedy and estimate of time and effort needed to implement remedy" were provided by Peer Review committee. "Column C. District Responses to Specific Comments" has been added which provides

the District response to each Peer Review comment. Completed peer Review forms and District responses are listed for each Peer Reviewer separately. A District response of “No District Response Required” denotes a Peer Review comment which did not recommend a remedy to be addressed in the technical assessment. Where appropriate, the St. Marks River Rise MFLs Technical Assessment Report and supporting appendices were modified to address Peer Review comments.

Peer Review Form for Dr. Adam Munson and District Responses

APPENDIX **A**– PEER REVIEW FORM
NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Review of "Recommended Minimum Flows for Gainer Spring Group, Williford Spring Group, and Sylvan Spring Group, Washington and Bay Counties, Florida"

Name and Affiliation of Reviewer: Adam Munson PhD, PE. University of Florida	**Discipline specialty covered by this review: MFL History, Statistical Methods.**

This document is for the use of PEER REVIEWERS retained by the Northwest Florida Water Management District (DISTRICT) for the purpose of providing a technical peer review of a DISTRICT report, including appendices prepared by DISTRICT staff and consultants.

REVIEW REQUIRED

1. **Determine whether the methods used for establishing the minimum flows are scientifically reasonable.**
    a. Supporting Data and Information: Review the data and information that supports the method and the proposed minimum flows, as appropriate. The reviewer shall assume the following:
        a. The data and information used were properly collected; and
        b. Reasonable quality assurance assessments were performed on the data and information.

        Note: The PEER REVIEWERS are not expected to provide independent review of standard procedures used as part of institutional programs that have been established for the purpose of collecting data, such as the USGS and DISTRICT hydrologic monitoring networks.

    b. Technical Assumptions: Review the technical assumptions inherent in the methodology and determine:
        a. If the assumptions are clearly stated, reasonable, and consistent with the best available information; and
        b. Assumptions were eliminated to the extent possible, based on available information.

c. Procedures and Analyses: Review the procedures and analyses used in developing quantitative measures and determine qualitatively whether:

   a. The procedures and analyses were appropriate and reasonable, based on the best available information;
   b. The procedures and analyses incorporate appropriate factors;
   c. The procedures and analyses were correctly applied;
   d. Limitations and imprecision in the information were reasonably handled;
   e. The procedures and analyses are repeatable; and
   f. Conclusions based on the procedures and analyses are supported by the data.

2. If a proposed method used in the MFL report is not scientifically reasonable, the PEER REVIEWERS shall:

a. Deficiencies: List and describe scientific deficiencies;
b. Remedies: Determine if the identified deficiencies can be remedied and provide suggested remedies:
c. If the identified deficiencies can be remedied, then describe the necessary corrections and, if possible, provide an estimate of the time and effort required to develop and implement; and
d. If the identified deficiencies cannot be remedied, the, if possible, identify one or more alternative methods that are practical, cost-effective, and scientifically reasonable, based on published literature to the extent feasible.

REVIEW CONSTRAINTS

CONTRACTOR and PEER REVIEWERS shall acknowledge the statutory constraints and conditions (Sections 373.042 and 373.0421, Florida Statutes and Chapter 62-40.473, Florida Administrative Code) affecting the DISTRICT's development of MFLs. CONTRACTOR and PEER REVIEWERS shall also acknowledge that review of certain assumptions, conditions, and established legal and policy interpretations of the Governing Board are not included in the scope of work. These include:

1. The selection of waterbodies or aquifers for which minimum flow and/or levels are to be set.
2. The Definition of what constitutes "significant harm" to the water resources of ecology of the area;
3. The consideration given to changes and structural alterations to watersheds, surface waters, and aquifers, and the effects and constraints that such changes or alterations had or placed on the hydrology of a given watershed, surface water, or aquifer; and

Review of "Recommended Minimum Flows for Gainer Spring Group, Williford Spring Group, and Sylvan Spring Group, Washington and Bay Counties, Florida"

4. The method(s) used by other District or agencies for establishing MFLs for other waterbodies and aquifers.

APPENDIX A– PEER REVIEW FORM
NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Review of "Recommended Minimum Flows for Gainer Spring Group, Williford Spring Group, and Sylvan Spring Group, Washington and Bay Counties, Florida"

Instructions:

1. The results of this review are for the use of the DISTRICT and they are not to be revealed to others without the express permission of the DISTRICT.
2. By signing this form, the PEER REVIEWER certifies that the peer review was conducted according to the guidelines listed above and that the opinions and recommendations included in the review constitute an independent review per Chapter 373.042 (5), in the discipline noted above.
3. The Peer Reviewer also certifies that the review was conducted according to the scope and conditions specified above.

Signature of Peer Reviewer:	Date of Peer Review: 2/28/2025
	

Responders Certification: the comments and criticisms proved by the PEER REVIEWER have been addressed as noted in column C in a separate response document, which is attached, and in the report.

Name and Affiliation of Responder to Peer Review Comments:	
Signature of Responder:	Date of Response:

District Responses to Dr. Adam Munson's Comments

Comment No.	Figure, Table, or Page and Paragraph No.	Does Comment Directly and Materially Affect Conclusions of Report? (Yes or No)	A. PEER REVIEWERS Specific Comments	B. PEER REVIEWERS specific remedy and estimate of time and effort needed to implement remedy	C. DISTRICT responses to Specific Comments
		Overall Impression	The report does a reasonable job given the recent climatic impacts on the system. The overall approach is reasonable, uses the best available-at times limited-data, and is well supported by previously established MFLs. Furthermore, the high degree of public ownership of lands in the contribution area, the lack of foreseeable consumptive uses and the relatively unimpacted nature of the system offer ample evidence that the system is not in recovery and is likely to remain largely unimpacted within the planning period. Additionally, the 9.5% reduction in historic flows is withing the range of other MFLs developed for spring-dominated systems (20.5 – 15% reductions in flow)		No District Response Required
1	Figure 1-1, Page 25	No	The reference to Figure 1-1 on page 24 discusses the confluence of Bear Creek (among other features). Bear creek is not mentioned on the figure.	Label the map or remove the reference.	Bear Creek has been added to Figure 1-1.
2	Page 77	No	Regarding the use of the USF method (Perry 1995) for estimating baseflow – the selection is valid, and reasonable.	No corrective action is necessary, the use is reasonable. However, the	As described in the report," This method is a modified version of the USGS HYSEP baseflow separation

			However, in recent years different methods have been applied to different systems. The USF method has been used for Gum Slough by the SWFWMD and now is being used by the NWFWMD with a similar argument justification, which is reasonable. Both systems utilize the 61-day window form the USF method. Conversely, on Weeki Wachee River, Santa Fe River and the Ichetucknee River I believe a slightly different HYSEP method (of which the USF is a modified variation) was used employing different window lengths ranging from 30 to 90 days.	document, as well as future efforts, would benefit from additional discussion of the choice of method, and specifically the choice of associated window length. As use of any tool in MFL determinations increase, there is a tendency of future studies to justify the continued application by referencing earlier decisions. Therefore, discussion of tool selection, or a citation with greater support, is important.	technique allowing for modified window lengths to better represent baseflow processes typical of Florida streams." This method was chosen since it allows for longer windows needed for this system to accurately depict baseflow, which other methods do not. Future evaluations may consider other methods or provide expanded discussion.
3	Page 18	No	The choice to use Period of Record flows rather than seasonal flow blocks is reasonable and consistent with previous MFLs. Most notable the Rainbow River MFL did not use seasonal blocks, has average flows only slightly higher than the flows at CR 338 and is similar in lack a fluctuation. It also discharges into a backwater from an impoundment.	No action needed.	No District Response Required.
4	Page 20	Potentially	The Rainbow River, which shares some similarities with this system, has an allowable flow reduction of 5% based on the protection of floodplain vegetation. The next most limiting criteria is the protection of benthic invertebrates and fish, with an allowable reduction of 9%. This provides some corroboration for the 9.5% reduction recommended by this report, but it also highlights the	No action needed	No District Response Required.

			potential importance of the missing floodplain vegetation assessments. It is again commendable that the report acknowledges a commitment to future reevaluations as the system recovers from hurricane Michael.		
5	Page 48	No	Here the report discusses the lower precipitation from 1998 to 2013 and attributes it to the warmer phase of the AMO. The Report also mention several years above average rainfall from 2013 to 2021. This also happened in the warmer AMO period. Because this is a bimodal river, it might be expected that the dominance between the southern and norther pattern are not as pronounced, as we might expect in a system exhibiting only one of the patterns. This might explain when the relationship between the AMO phases and precipitation appear less consistent.	Consider if invoking the AMO as the rational for the low rainfall is salient to the argument for the MFL.	Analysis of AMO cycles was not critical to establishment of the MFL. The intent was to gain a better overall understanding of long-term rainfall patterns which ultimately impact groundwater recharge and baseflow to Econfina Creek. This information was useful when developing the hydrologic models used in this evaluation but was not explicitly utilized in the MFL assessment.
6	Page 50	No	There are spring groups in Florida where the chemical composition varies markedly from vent to vent (Rainbow). If you are using daily averages across multiple grab samples from different and varying vents, it is important to state that this is reasonable approach to construction a time series. Additionally, the report should confirm that samples between vents are similar enough that they represent the Spring groups without introducing bias from site selection.		Water quality is similar at the different vents for this system. For example, for Gainer Spring Group nitrate concentration, most measurements were either taken at Gainer #2 (Emerald Spring) or Gainer #1C (McCormick Spring), and both locations have average nitrate concentrations of 0.2 mg/L.

7	Table 2-3	No	3 samples from between 1970 -2009 means 1970, 2009, and one other year. Consider just placing the dates or the years.		Change made to Table
8	Page 114	Potentially	The report does not make use of any form of HSC for inverts. The only listed species identified are both mussels. There are generic curves for benthic invertebrates available, from Gore, which have been used on a significant number of rivers in Florida for MFL development. The report should detail why the habitat curves that are available were not used.	Revise report to address the lack of an HSC which addresses the two listed species of mussels.	Additional HSC curves have been added and modeled for macroinvertebrate species and the results of the technical assessment have been updated.
9	Page 69	No	Flow measurement methodology is unclear.	The report should specify the methods used in measuring flow. If this is part of a data collection program or documented elsewhere a citation is sufficient.	The District hydrologic data collection follows USGS Techniques and Methods 3A-22, 2014 guidelines. Additional detail has been provided in the report.
10	Page 97	No	The use of two different power boat standards in the stream is consistent with other MFLs where specific uses have been considered and standards which are not possible to achieve are disregarded.	N/A	No District Response Required.
11	Page 105 and 108	No	Figures should provide river station or XS number for cross sections.	Add XS or RS numbers to figures showing cross sections.	Additional maps displaying the HEC-RAS model transect locations have been added as Figure 5-1b and Figure 5-1c.
12	Page 109	No	The description of goodness-of-fit could be improved. The claim is made the inspection legitimizes the calibration. It is also noted that higher flows during the calibration period prevent a meaning comparison of low flows. Figures 5-4 and 5-6 appear similar at a casual glance figure 5-5	The document would benefit from discussion of figure 5-5 and acknowledgement of the inflection point.	Added “A slight inflection point around 450 cfs for the NWFWMD 8100 rating is due to a shift in the rating curve under low flow conditions, which was unable to be depicted by the model.”

			presents more notable discrepancies. Specifically, both the base rating and the measured data seem to show an inflection at about 450 CFS. A feature which the model does not capture. It is noted that traditional goodness-of-fit metrics are present in Table 5-2.		
13	Figure 6-2	No	The red line and green line are composed of two different standards. A 15 and a 30-foot width. This could be improved with either color change or a vertical line indication when in the river you change from the 15 to the 30-foot criteria	Recommend an alteration to the figure for clarity.	The Figure and associated caption have been edited for clarity.
14	Page 131	?	The justification for using a regression line is unclear. While it represents an average slope, floodplain inundation often occurs through localized overtopping points, where water to escape into the floodplain, often remaining trapped when flood waters recede channel. In such cases, the lowest observed points facilitation connection would be of the most critical, rather than an average. Further, the text seems to imply the out of bank flow was only evaluate at a single transect, (7624). The stage flow relationship is not linear in the way the derived regression equation is linear so how does analyzing cross section 7624 translate upstream or down?	Please clarify the last paragraph of page 131 and explain more fully how bank full/out of bank flows have been evaluated over the length of the study corridor.	Removed the regression relationship and added assessment of individual cross section top of bank elevations
15	General	No	In most MFLs the impacts of water use are evaluate through use of a groundwater model. In this MFL total withdrawals were calculated and a 1-to-1 flow reduction was made from	No need to comment.	No District Response Required.

			the historic record. This is conservative as the report points out. How will proposed ground water withdrawals be evaluated against the MFL?		
16	Page 48, 78 and others	No	The report makes frequent reference to the difference between 1998-2012 and 2013-2021. 2013 was a notably wet year with two tropical storms. It is unclear why the 2013 is meaningful to the MFL though it is interesting. A case was made that 2013-2021 was different then 1998-2012. But no case was made that 2013 – 2021 was unprecedented in the record. The notion that hurricane Michael 2018 altered the floodplain so drastically that it serves as the beginning the model calibration period is very logical and well presented.	If 2013 is of significance to the MFL please define how more clearly in the document.	This analysis was used to put into context the cause of higher flows post-hurricane Michael, which were concluded to be due to climatic variables and higher precipitation rather than alterations to land use/land cover caused by hurricane impacts. However, it was not of critical importance for determining the MFL directly.
17	Section 5.1	Yes	The HEC-RAS model is particularly challenging because the calibration period is shortened by Hurricane Michael. The district has done commendable work in clearing debris, collecting new survey data, and creating a model. However, the model's calibration, for low flows particularly, is less well validated than is desirable. It does represent the best available information. The report has committed to re-evaluation/adaptive management in the future as more data becomes available.	The model should be further validated/re-calibrated as additional data becomes available. The report might identify the conditions that would allow consideration of recalibration, such as a specific length of time or a specific high and low flow being observed.	The District is pursuing MFL establishment using an adaptive management approach. As additional data becomes available, it will be considered as appropriate.
18	Section 6.2.1	Yes	The reports use of wetted perimeter to evaluate both high and low flows.	Given the high base flow in the river and the lack of very	Individual plots of wetted perimeter vs. flow were reviewed

			For low flows it examines an aggregated toe of bank and similarly for high flows a top of bank. A) (Low flow protection) The report cites the Rainbow River and the Aucilla river MFL reports. In the Rainbow River MFL the LWPIP was used, as has often been done, to protect low flows by identifying the point at which streambed habitat would be lost rapidly with decreasing flows. Stalnaker (1995) referees to it as a surrogate for minimally acceptable habitat. In this report the LWPIP is an aggregate of all stations weighted by subsegment length. This is different than many rivers that evaluate LWPIP cross section by cross section. This report recognizes the importance of different habitat types in part by identifying two reaches of the river as distinct and separating them. The argument for this is the same as the argument for not aggregating the weighted cross-section. That pools and deeper segments might dull the ability to protect some shallow runs or but smaller volumes of the river. It is unlikely in a river with high base flow that the LWPIP is limiting. However, a pool is not the same as a run and aggregation of the area for assessment of the LWPIP (ie toe of bank) seems suspect since it might discount the rarer habitat in the low flow assessment (ie, that which is common might not be that which is	shallow water (as shown by the prevalence of boat passage) it is likely the treatment does not result in loss of a critical metric. The treatment is consistent with the cited Aucilla River report. However, it is not consistent with the cited Rainbow River Report for low flow analysis. Therefore, additional justification of the methodology is desirable. It should be noted that most often in MFL analysis the hydraulic controls in the river are identified as part of the selection of XSs locations and in the physical habitat simulation model riffle pool run segments will be purposely identified.	and determined it would add too much additional uncertainty to determine inflection points based on individual cross sections. Therefore, the weighted wetted perimeter was utilized. Additional information and clarification were added to the report.

			most subject to loss). Further, cited Rainbow River MFL does not aggregate (weight) the cross section into a single curve but examines each cross-section in the Rainbow River HEC RAS model. It also acknowledges this technique provides unique protection when applied to riffle and shoal areas which are purposely selected for use in the instream flow evaluation models and present in the HECRAS models (Page 84 of the SWFWMD 2017B).		
19	Section 6.2.1	Yes	B) The wetted perimeter was also one of only 2 methods used to assess floodplain inundation or out of channel flow as a means of protecting high flows. Importantly this is linked to the protection of 5 WRVs (page 102). The report cites the use of wetted perimeter to evaluate floodplain inundation/connection for both the Aucilla and Rainbow Rivers. For this application the aggregation of all reach weighted cross section is appropriate and consistent with both reports. However, the Econfina report identified the 1-to-1 point on this aggregate curve as the critical point and finds the flow reduction that results in a 15% habitat reduction from that flow, for each of two identified segments. This is reasonable and I believe consistent with the Aucilla report. However, the	Request additional discussion of the single elevation criteria (versus CDF reduction) given that wetted perimeter is the only metric successfully developed for the protection of high flows and that it represents presumed protection for 5 WRVs. A single point is a reasonable addition when buttressed by vegetative transects, sang habitat, woody debris etc and other indicators are intermediate flows.	Due to ongoing changes to wetland communities as a result of Hurricane Michael, floodplain inundation assessment was not conducted at this time. Additional information was added to the report stating this analysis may be pursued when sufficient data becomes available.

			Rainbow was cited as well and seems to have many similarities with Econfina Creek. However, the SWFWMD used and AUC reduction approach when evaluating habitat loss to evaluate protection over a range of flows and time. Given the lack of data following Michael (woody habitat, snag habitat, vegetative transects etc.) would this make more sense. It would serve at least as a temporary proxy for some of the other common but missing indicators?		
	Page 22	No	Space in second line between "of/Ecofina"		Edit made
	Page 40	No	Fix Reference Error		Edit made
	Page 57	No	"the reference at the end of the second paragraph for Figure 2-21 needs to be fix.	Replace 2-21 with 2-24?	Edit made
	Figure 3-18	No	Note that the post Michael condition is really post debris removal		No District Response Required
	Page 88	No	Space between dates 10/10/2018 and 8/29/2019	typo	Edit made

Peer Review Form for Dr. Martin Hamel and District Reponses

APPENDIX A – PEER REVIEW FORM
NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Review of "Recommended Minimum Flows for Gainer Spring Group, Williford Spring Group, and Sylvan Spring Group, Washington and Bay Counties, Florida"

Name and Affiliation of Reviewer:	**Discipline specialty covered by this review:**
Martin Hamel, University of Georgia	**Biology/ecology in flowing systems**

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REVIEW CONSTRAINTS

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Review of "Recommended Minimum Flows for Gainer Spring Group, Williford Spring Group, and Sylvan Spring Group, Washington and Bay Counties, Florida"

4. The method(s) used by other District or agencies for establishing MFLs for other waterbodies and aquifers.

APPENDIX A – PEER REVIEW FORM
NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Review of "Recommended Minimum Flows for Gainer Spring Group, Williford Spring Group, and Sylvan Spring Group, Washington and Bay Counties, Florida"

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3. The Peer Reviewer also certifies that the review was conducted according to the scope and conditions specified above.

Signature of Peer Reviewer:	Date of Peer Review:
Walter J. Bond	2/27/2025

Responders Certification: the comments and criticisms proved by the PEER REVIEWER have been addressed as noted in column C in a separate response document, which is attached, and in the report.

Name and Affiliation of Responder to Peer Review Comments:	
Signature of Responder:	Date of Response:

District Responses to Dr. Martin Hamel Comments

Comment No.	Figure, Table, or Page and Paragraph No.	Does Comment Directly and Materially Affect Conclusions of Report? (Yes or No)	PEER REVIEWERS Specific Comments	PEER REVIEWERS specific remedy and estimate of time and effort needed to implement remedy	DISTRICT responses to Specific Comments
1	P.51, Table 2-5	No	I am curious as to why a Mann-Kendall test was used to examine long-term trends in nitrate, conductivity, and d.o. Why not use a parametric approach (i.e., linear regression)? The data does not suggest a non-linear pattern. If the authors wanted to take this a step further, they could incorporate a change-point analysis to see if a change occurs in a time series data set.	Perform a linear regression	The Mann-Kendall test is a widely accepted method for assessing long-term monotonic trends for environmental variables such as water quality parameters, and stream and spring flow. Based on the USGS publication, *Statistical Methods in Water Resources* by Helsel et al. 2020, utilizing Mann-Kendall is preferred to linear regression for this application for several reasons. Mann-Kendall does not require the dataset to be normally distributed or have constant variance or linear residual plots. Furthermore, Mann-Kendall is less sensitive to outliers while only providing slightly less predictive power as compared to linear regression. Therefore, Mann Kendall testing is preferred for monotonic trend testing of water quality due to these considerations.
2	Figure 2-23	No	I would like to see a more detailed figure caption. It is not clear to me what the green and red lines represent. I thought that the red line was going to be the	Provide additional detail in figure caption.	Additional detail has been added to the figure caption.

			maximum stage experienced during the hurricane, but the blue line exceeds this value.		
3	P. 78, Figure 3-4	No	I would urge caution in using a two-sample t-test to compare long-term baseflow averages. With a degrees of freedom of 9,158, this test will have a high statistical power and will likely result in a significant result. The issue with this statistical power is that differences can be very small and still result in a statistical difference. Therefore, it is important to look at the effect size (i.e., the practical significance) to determine the biological significance.	While this is an appropriate test, additional post-hoc tests such as the Cohen's D can be used to check the magnitude of the difference in means. Alternatively, if you are concerned about specific shifts in mean annual flow, a change-point analysis may provide added benefits of statistically determining when (and how many) changes occur.	The referenced statistical tests have been removed from the report.
4	P. 89 (3.6)	No	Refer back to comment #1 and #3 for use of the Mann-Kendall trend test and t-test. I also think it would be beneficial to include a measure of variance when reporting means (i.e., SD or SE). Seeing the variance will speak to my point in comment #3 about statistical power and the ability to detect statistical differences from very small differences among means.	Consider alternative analyses and include variance when reporting means.	Refer to comment 1 regarding justification for utilizing Mann-Kendall. As mentioned in response to comment 3, The referenced t-tests were removed from the report.
5	P. 97	No	Given the fish community present in Econfina Creek, what we are really talking about is maintaining connectivity throughout the system. Fish passage infers movement above a barrier, often in relation to migratory species.	Consider alternative assessment or terminology.	The District agrees that upstream/downstream connectivity is the primary metric being considered under fish passage as has been done in multiple MFL evaluations throughout the state. For consistency with other MFLs in

			However, migratory species (potamodromous or anadromous fishes) are not present in this system. There are several fluvial-dependent species though, and they require access to different habitat types throughout the year. Fortunately, using the criteria for fish passage (thalweg depth of 0.6 ft) inadvertently does a good job in maintaining connectivity for the fish community, despite the metric not really being relevant to any one particular species.		the state, the NWFWMD is maintaining the term fish passage for this metric during this evaluation. However, we acknowledge that additional discussion on the topic is warranted among the water management districts for consistency and clarity. Additional text has been added for clarification in the technical assessment.
6	P. 113	Perhaps, but no likely	The district provided comments and alternative text to better describe how area weighted suitability is calculated. A statement was made that said "Substrate was not utilized in the Econfina Creek evaluation as it consisted exclusively of sands and displayed no variability". I find it difficult to believe that the entire stream bed is sand with no variability at all. Is this a post-hurricane effect? Many of the stream fishes listed as present in Econfina Creek have habitat preferences of silt, mud, gravel, and aquatic vegetation.	Corroborate there is no variation in substrate (only sand).	Variation in substrate along Econfina Creek is minimal. District staff conducted a qualitative field review of substrate at all HEC-RAS model transects on January 18, 2023, and January 30, 2024.
7	P. 113	Not likely	It is stated that habitat suitability curves were not available for either species of mussels or their host species. While there may not be published HSI curves for the species, there is information that	Incorporate best available information of habitat requirements for Oval Pigtoe and Gulf Moccassinshell into habitat suitability.	Host species for the listed mussel species were investigated as part of the SEFA modelling effort. Many species displayed an increase in available habitat with flow reductions, however some did not.

			can be inferred. Given that the two mussels are federally endangered species, I think these should be a focal point in establishing a MFL that ensures no harm for the species. The recovery plan for the two mussels provides habitat associations (i.e., slow to moderate current, sand/silt/gravel substrates, etc.). I agree that the number of curves analyzed is likely protective of the species, I believe the MFL is less credible (from a fish and wildlife water resource value perspective) using HSI information from mostly generalist species, and not accounting for species of greatest conservation concern.		Host-fish species were not specifically mentioned in the results section. The District is providing additional information in the results pertaining to listed mussel species host-fish species analysis. Additional HSCs have been analyzed for inclusion in the analysis including macroinvertebrates such as Ephemotera, Plecoptera, and Tricoptera which should provide additional protection to mussel species.
8	P. 127	No	It would be good to cite a figure that outlines where XS 6361 is located at.	Reference a map that shows XS 6361	Additional maps displaying the HEC-RAS model transect locations have been added as Figure 5-1b and Figure 5-1c.
9	P. 129	Not likely	The calculation of weighted wetted perimeter seems appropriate and using the inflection points to describe top and toe of banks makes sense. I am having difficulty understanding how this was used to determine the allowable change in flow for a 15% reduction. It is stated that a 15% reduction results in an allowable flow reduction of 10.78%. Is this the maximum reduction that would still allow for water to surpass the top of bank inflection	Additional information to describe procedures.	Clarification was added to this section to better define the purpose of the analysis. Assessing a 15% reduction from the top of bank inflection point reflects a 15% reduction in riparian bank habitat as well as bankfull conditions which contribute to sediment transport and riverine fluvial dynamics. Assessment of out-of-bank flows/floodplain was considered in the following section.

			point and enter into the floodplain? As a river ecologist, I know the value of out-of-bank flows to increase overall river productivity, but also to provide important fish nursery habitats during the late spring/summer months. Have you considered including temporal aspects to your analysis? The importance of out of bank flows is not equal throughout the year. Furthermore, the number of times the river enters into the floodplain and the duration of inundation are important metrics that are not discussed.		
10	P. 132	No	It was stated that the estimate of top of bank at CR 388 resulted in bankfull flows not being achieved under any flow condition modeled. This doesn't seem right as bankfull flows certain occur at some point. Is this the reason why the elevation data was not considered further? That was not clear to me.	Provide additional clarification.	This analysis was modified to consider all model transects as opposed to a single transect. For some transects, flooding did not occur under any simulated flow condition. Econfina Creek has steep banks in certain stretches, with infrequent flooding occurrences.

Peer Review Forms for Jeremy Wyss and District Responses

APPENDIX A PEER REVIEW FORM
NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
Review of "Recommended Minimum Flows for Gainer, Sylvan, and Williford Spring Groups, Washington and Bay Counties, Florida"

Name and Affiliation of Reviewer:	**Discipline specialty covered by this review:**
Jeremy Wyss, Tetra Tech	Hydrologic and Hydraulics Modeling

This document is for the use of PEER REVIEWERS retained by the Northwest Florida Water Management District (DISTRICT) for the purpose of providing a technical peer review of a DISTRICT report, including appendices prepared by DISTRICT staff and consultants.

REVIEW REQUIRED

1. **Determine whether the methods used for establishing the minimum flows are scientifically reasonable.**
   a. Supporting Data and Information: Review the data and information that supports the method and the proposed minimum flows, as appropriate. The reviewer shall assume the following:
      i. The data and information used were properly collected; and
      ii. Reasonable quality assurance assessments were performed on the data and information.

   Note: The PEER REVIEWERS are not expected to provide independent review of standard procedures used as part of institutional programs that have been established for the purpose of collecting data, such as the USGS and DISTRICT hydrologic monitoring networks.
   b. Technical Assumptions: Review the technical assumptions inherent in the methodology and determine:
      i. If the assumptions are clearly stated, reasonable, and consistent with the best available information; and
      ii. Assumptions were eliminated to the extent possible, based on available information.
   c. Procedures and Analyses: Review the procedures and analyses used in developing quantitative measures and determine qualitatively whether:
      i. The procedures and analyses were appropriate and reasonable, based on the best available information;
      ii. The procedures and analyses incorporate appropriate factors;
      iii. procedures and analyses were correctly applied;
      iv. Limitations and imprecision in the information were reasonably handled;
      v. The procedures and analyses are repeatable; and
      vi. Conclusions based on the procedures and analyses are supported by the data.
2. **If a proposed method used in the MFL report is not scientifically reasonable, the PEER REVIEWERS shall:**
   a. Deficiencies: List and describe scientific deficiencies;
   b. Remedies: Determine if the identified deficiencies can be remedied and provide suggested remedies:
      i. If the identified deficiencies can be remedied, then describe the necessary corrections and, if possible provide an estimate of the time and effort required to develop and implement; and
      ii. If the identified deficiencies cannot be remedied, the, if possible, identify one or more alternative methods that are practical, cost-effective, and scientifically reasonable, based on published literature to the extent feasible.

REVIEW CONSTRAINTS

CONTRACTOR and PEER REVIEWERS shall acknowledge the statutory constraints and conditions (Sections 373.042 and 373.0421, Florida Statutes and Chapter 62-40.473, Florida Administrative Code) affecting the DISTRICT's development of MFLs. CONRACTOR and PEER REVIEWERS shall also acknowledge that review of certain assumptions, conditions, and established legal and policy interpretations of the Governing Board are not included in the scope of work. These include:

APPENDIX A PEER REVIEW FORM
NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
Review of "Recommended Minimum Flows for Gainer, Sylvan, and Williford Spring Groups, Washington and Bay Counties, Florida"

1. The selection of waterbodies or aquifers for which minimum flow and/or levels are to be set;
2. The definition of what constitutes "significant harm" to the water resources or ecology of the area;
3. The consideration given to changes and structural alterations to watersheds, surface waters, and aquifers, and the effects and constraints that such changes or alterations had or placed on the hydrology of a given watershed, surface water, or aquifer; and
4. The method(s) used by other District or agencies for establishing MFLs for other waterbodies and aquifers.

Instructions:

1. The results of this review are for the use of the DISTRICT and they are not to be revealed to others without the express permission of the DISTRICT.
2. By signing this form, the PEER REVIEWER certifies that the peer review was conducted according to the guidelines listed above and that the opinions and recommendations included in the review constitute an independent review per Chapter 373.042 (5), in the discipline noted above.
3. The Peer Reviewer also certifies that the review was conducted according to the scope and conditions specified above.

Signature of Peer Reviewer:	Date of Peer Review:
	2/26/2025

Responders Certification: the comments and criticisms proved by the PEER REVIEWER have been addressed as noted in column C in a separate response document, which is attached, and in the report.

Name and Affiliation of Responder to Peer Review Comments:	
Signature of Responder:	Date of Response:

District Responses to Mr. Jeremy Wyss' Comments

Comment No.	Figure, Table, or Page and Paragraph No.	Does Comment Directly and Materially Affect Conclusions of Report? (Yes or No)	PEER REVIEWERS Specific Comments	PEER REVIEWERS specific remedy and estimate of time and effort needed to implement remedy	DISTRICT responses to Specific Comments
1	Draft_techassess_Econfina_250131.docx Page 22 Paragraph 1	No	Typo	Change ofEconfina to of Econfina	Edit made.
2	Draft_techassess_Econfina_250131.docx figures 2-9, 2-10, 2-11, and 2-12	Yes	source of the Groundwater contributing area to the Gainer-Sylvan-Williford group of springs polygon used in listed figures is unclear	Clarify source in text and figures and/or discuss development of polygon	Additional details were provided regarding the delineation of the groundwater contribution area.
3	Draft_techassess_Econfina_250131.docx Table 3-6		Table 3-6 is unable to be reproduced based on the information available in the report. Williford Spring Group (42 cfs) and Sylvan Spring Group (18 cfs). Combined Williford, Sylvan, and Econfina Blue spring groups median flow is provided as 74 cfs. Where did the additional 14 cfs come from? Was it Blue Spring? A summary of Blue Spring flow is not presented in table 3-4 and Blue Spring is mentioned only in passing in section 3.1.	Provide details in the report about Blue Spring and discuss the data availability for Blue Spring. Add Blue Spring flow summary statistics to Table 3-4. Alternatively, could update Table 3-6 to match information as provided.	Table changed to remove Econfina Blue spring group contributions
4	Draft_techassess_Eco		Baseflow Econfina Creek @ CR388 timeseries is different (2019) than	Plot correct timeseries in Figure 3-7. Redo linear regression between	Plot and regression are correct; however, the

	nfina_250131.docx Figure 3-7		what is plotted in previous figures (i.e. Figure 3-6 and figure 3-4).	baseflow and groundwater levels (Figure 3-8) and update text below Figure 3-6.	data was truncated to only the concurrent dates with groundwater level measurements. Clarification was added to the report.
5	Draft_techassess_Econfina_250131.docx Figure 3-14		Baseflow Econfina Creek @ SR20 timeseries appears different (2022) than what is plotted in previous figure (i.e. Figure 3-12).	Plot correct timeseries in Figure 3-15. Redo linear regression between baseflow and groundwater levels Figure 3-8 and update text below Figure 3-13.	See response to comment 4.
6	Draft_techassess_Econfina_250131.docx table 3-10, table 3-12, table 3-13, and table 3-14	Yes	estimates in table 3-10, table 3-12, table 3-13, and table 3-14 are reasonable so long as the GWCA shapefile (see comments for section 2.3 and 2.4) was appropriate for use in this study	Clarify source of GWCA shapefile in text and figures and/or discuss development of polygon to build confidence that the correct GWCA is being used to calculate the impact of groundwater withdrawals.	Additional details were provided regarding the development of the groundwater contribution area.
7	Draft_techassess_Econfina_250131.docx 4.11 Selection of Water Resource Values and Associated Metrics, pg102		Water quality WRV is not listed in 4.11. Section 4.9 Water Quality states metrics pertaining to water quality were not utilized in the MFL determination.	Water Quality ought to be added to the “not relevant section”	Water quality has been added to the not relevant section
8	Draft_techassess_Econfina_250131.docx 5.2 SEFA		Table 5-3 does not contain an entry for black banded darter however Appendix A presents habitat suitability curves for black banded darter and black banded darter and black banded darter is	Review and update table 5-3 for completeness.	Black-banded darter was analyzed using SEFA but displayed an increase in habitat with reduced flows. Expanded text has been provided specifying

	Model, pg112		a documented species to occur in Econfina creek.		the results for mussel host species.
9	Econfina SEFA Task 4 December 9.docx pg2	No	Typo	Taxon/lie stage should be taxon/life stage	Typo has been corrected.
10	Econfina SEFA Task 4 December 9.docx pg3		Page 3 states "Econfina Creek itself has a surface water basin covering 275 square miles (~176,000 acres), however the draft technical assessment on page 26, section 2.1, paragraph 1 states "Econfina Creek watershed is approximately 188 square miles." Which one is correct?	ensure that the descriptions match between the documents.	Reference was removed from the SEFA appendix. The version in the technical assessment document is consistent with the analysis conducted in the report. All values were derived from current GIS layers in District geodatabases.
11	Econfina SEFA Task 4 December 9.docx pg3	No	Page 3 states "This 41,363-acre watershed in Washington and Bay counties runs 14 miles along the course of Econfina Creek." What watershed is 41,363? What is 14 miles long? The draft technical assessment and HEC-RAS report state the study area is the 11.8-mile portion of Econfina Creek between Williford Spring and Deer Point Lake.	ensure that the descriptions match between the documents.	References were removed to ensure consistency. The version in the technical assessment document is consistent with the analysis conducted in the report. All values were derived from current GIS layers in District geodatabases.
12	Econfina SEFA Task 4 December 9.docx Table 2		Table 2 does not match table 2-6 and table 2-7 in the draft technical assessment. Table 2 omits American eel and Grass carp from the draft technical assessment table 2-6 and Gulf Spike, Rayed Creekshell, Iridescent Lilliput, Southern Rainbow, and Little Spectaclecase from the draft technical assessment table 2-7. It is not documented why all species	Review table to ensure completeness	Tables have been updated to ensure consistency.

			identified in the draft technical assessment are not considered in the SEFA modeling.		
13	Econfina SEFA Task 4 December 9.docx Table 3		Table 3 does not contain an entry for black banded darter however Appendix A presents habitat suitability curves for black banded darter and black banded darter and black banded darter is a documented species to occur in Econfina creek.	Review table to ensure completeness	Tables have been updated to ensure consistency.
14	Econfina SEFA Task 4 December 9.docx Table 4		Comparing table 4 in the SEFA report to table 2-3 in the HEC-RAS report shows that Table 4 is 1.8 cfs greater. As described in section 5.2 of the main report this is due to the adjustment of +1.78 cfs (representative of total 2020 groundwater withdrawals within the Econfina GWCA).	For complete transparency, flow adjustments ought to be discuss in the SEFA report since this adjustment for scenario modeling is not mentioned in the HEC-RAS report but the HEC-RAS model is documented as the source for the flows in table 4.	Flow adjustment has been referenced in the SEFA appendix.

APPENDIX A – CURRICULUM VITAES OF PEER REVIEW PANEL

Curriculum Vitae for Dr. Adam Munson

Adam B. Munson, PhD, PE

Phone: (352) 222-0587 e-mail: abmunson@mail.ufl.edu

SUMMARY OF QUALIFICATIONS

Results-oriented scientist and educator with over 30 years' leadership in combining technology and management expertise to exceed goals for educators, business/utilities, and engineering communities. A diverse education has resulted in technical competence and established the ability to interface with individuals of varied expertise, particularly in the fields of engineering, sustainable supply chain strategy, and business analytics. Holds his Professional Engineering License in the discipline of industrial engineering (#74026). Current interests focus on business intelligence in a big data environment and sustainable operation and supply chain.

EDUCATION **University of Florida** Gainesville, FL

Postdoctoral Bridge Program: July '13
- *Course work in business disciplines and research focused on consumer decisions in water consumption*

Master of Business Administration: May '09
- Course work in Data Analytics, Operations Management, Supply Chain Management, International Logistics, Business Law and Finance, Accounting, Economics, Organizational Behavior, Statistics, and Data Systems.
- Beta Gamma Sigma Business Honorary

Ph.D. Environmental Engineering (Hydrologic Sciences Academic Cluster): December '06
- Dissertation title: *Protection of Floodplain Wetlands Associated with Minimum Flow and Level Development in Southwest Florida*
- Focused on Constraint Evaluations, Resource Yield Maximization, Water Supply Optimization, Natural Systems Hydrology, Surface Water Hydrology, Groundwater Hydrology, Advanced Water Quality Analysis, Pollution Control and Prevention, et al.

Graduate Certificate in Environmental Policy and Management: May '05
- Course work in Management, Policy, Law, Advanced Planning, and Natural Resources and Environmental Policy, including water-supply optimization modeling of multiple conjunctive uses

Master of Science, Limnology (Department of Fisheries and Aquatic Sciences): May '99
- Thesis title: *Water Clarity in Kings Bay/Crystal River, Florida*
- Course work in Limnology, Stream Ecology, Biology and Physiology of Fish, Ecology and Physiology of Aquatic Plants, Extensive Statistics, et al.

Bachelor of Science in Mechanical Engineering: August '94
- Florida Academic Scholar
- Course work in Fluid Dynamics, Thermodynamics, Mechanical Design, Physics, Chemistry, Heat Transfer, Extensive Mathematics, et al.

CAREER PROGRESSION

Warrington College of Business Administration, University of Florida, Gainesville, FL January 2009 – Present
Instructional Professor
- Substantial Executive and professional instruction experience in MBA
- Instruct courses in data science. Topics include, artificial intelligence, machine learning, cluster analysis, principal component analysis, association rules, dimensional reduction, and other supervised and unsupervised data mining techniques.
- Recent lead experiential learning program to connect student teams with business to fulfill business needs and provide students a more realistic consulting experience. Most projects were focused on hospital supply chain, and pharma supply chain needs.

- Instructor MAN 4504 Operations and Supply Chain Management, the capstone course in the Warrington College of Business Administrations undergraduate program and part of UF online. This is an electronic platform course of up to approximately 800 students taught through an online learning platform and utilizing an array of technologies to engage students in an asynchronous environment.
- Instruction in Optimization Modeling, Empirical Modeling, Operations and Supply Chain Management, Project Management, Database Structure, and Business Intelligence.
- Developing the framework for a quality simulation model for Pearson Publishing including Learning Objectives, real world scenario development, algorithmic framework and numerical assessment of performance.
- Member of the Warrington College of Business Teaching Committee.
- Faculty advisor for Florida chapter of AIS (Association of Information Systems), Gator FinTech Club, Gator Karate, and Gator Bladers.

AMFL Inc, Gainesville, FL August 2011 - Present
Principal

- Provide peer review, quality oversight and expertise witness for rule codification in the State of Florida focused on the regulation of water abstraction.
- Consulting services in the area of strategic water supply planning, minimum flows and levels, and sustainable yield.
- Provided hydraulic modeling oversight.
- Provide expert peer review of appropriateness, application, and parameterization of quantitative techniques associated with predictive fore and hind casting.
- Literature review for constraint consistency and statistical comparison of Florida water supply yields with other regulatory entities within North America.
- Projects include 11 peer review panels and associated reports over 15 years and approximately 20 different hydrologic regions.

Water Supply Planning Activities

- Evaluate water-supply constraints under uncertain demand in northeast Florida.
- Identification of water supply strategies that pair the appropriate level of quality and need so that future demand can be met with the lowest cost for consumers.
- Evaluate the constraints associated with supply and identify demand-side management strategies that are effective and measurable.
- Perform uncertainty analysis on the temporal components of ecologic constraints.
- Evaluate model parameterization for a GIS based model predicting ecologic harm from consumptive water use.
- Develop empirical models of aquifer levels and rainfall/net precipitation to evaluate the proportion of drawdown associated with anthropogenic effects and climate.

Technical Review Activities

- Provide critical review of technical development supporting proposed rules for the F.A.C. for multiple agencies including FDEP, SRWMD, SWFWMD, and NFWMD.
- Provide critical review for the Suwannee River Water Management District associated with draft documents proposing regulation of ground water limitations in North Central Florida.
- Compare existing flood model results for Sarasota County with observations made during storm events of the past 50 years to determine if model results are reasonable for characterizing current flooding potential along the main-stem of the Myakka River.

Jones Edmunds & Associates, Gainesville, FL August 2009 – August 2011
Project Scientist/Manager

Water Supply Planning Activities

- Evaluate water-supply constraints under uncertain demand in northeast Florida.
- Identification of water supply strategies that pair the appropriate level of quality and need so that future demand can be met with the lowest cost for consumers.
- Evaluate the constraints associated with supply and identify demand-side management strategies that are effective and measurable.
- Perform uncertainty analysis on the temporal components of ecologic constraints.
- Evaluate model parameterization for a GIS based model predicting ecologic harm from consumptive water use.
- Develop empirical models of aquifer levels and rainfall/net precipitation to evaluate the proportion of drawdown associated with anthropogenic effects and climate.

Technical Review Activities

- Provide critical review for the Suwannee River Water Management District associated with draft documents proposing regulation of ground water limitations in North Central Florida.
- Compare existing flood model results for Sarasota County with observations made during storm events of the past 50 years to determine if model results are reasonable for characterizing current flooding potential along the main-stem of the Myakka River.

Regulatory Activity

- Water-supply constraint expert evaluating the largest proposed ground-water withdrawal in northeast Florida.
- Involved in the evaluation of demineralization concentration form a reverse osmosis plant into a natural river.

Southwest Florida Water Management District, Brooksville, FL April 2000 – August 2009
Senior Scientist

Evaluation of Supply Side Constraints for Water Resources in Southwest Florida

- Developed methodologies, which applied research results to water resource constraints, particularly with respect to surface water availability and the consequences of ground water abstraction related to surface water features.
- Assessed available supply from multiple sources for both near-term and strategic water supply planning.
- Adapted standard, highly complex computer statistical programs to District needs.
- Conducted complex statistical analyses of extensive databases, including water quality, rainfall and flow analysis. Prepares and presents related reports and materials.
- Utilized GIS to develop digital terrain models from manually and remotely gathered survey data and utilized digital terrain models in hydraulic model development and floodplain inundation analysis.
- Applied surface water models (e.g. HEC-RAS) to water bodies of interest and analyzed model output particularly with respect to multiple measures of loss and their inner-relationship.
- Evaluated use of alternate models such as HEC-EMF, River 2D and RHABSIM.
- Interpretation of physical habitat simulation analysis to characterize hydrologic regimes appropriate for specified fauna.
- Studied selected water bodies and environmental impact assessments of entire watersheds in support of regulatory goals and the natural systems objectives of the District.
- Developed, wrote, and presented related recommendations, reports and documents as appropriate.
- Assisted with the assessment of riverine fieldwork related to setting of minimum flows in streams and rivers, often in difficult or adverse conditions.
- Coordinated project activities and technical work of lower-level Environmental Scientists and Student Interns, including oversight of field data collection and preparation of related reports and materials.
- Assisted in developing surface water management recommendations focused on establishing minimum lake levels.
- Designed and conducted scientific investigations related to ecology of lakes and environmental impacts associated with water withdrawals.

Project Management

- Managed site-specific projects (i.e. installation of water control structures) involving technical interaction with consultant, coordination of agencies and private businesses, and public outreach.
- Managed agreements for regional projects such as the Coastal Springs Water Resource Atlas and the Hillsborough County Lake Monitoring and Assessment Program with total funding near $1.5 million.
- Prepared requests for proposals, and managed consultant contracts and cooperative funding agreements.

Florida Department of Environmental Protection, Gainesville, FL July 1999 – April 2000
Scientist

- Ecosystem Manager for Ochlocknee and St. Marks River basins.
- District representative for working groups on Wakulla Springs, Lake Iammonia, Lake Jackson, et al.
- Served as district representative for State Land Use Reviews within the Ochlocknee and St. Marks River basins.
- Evaluated the regulated communities compliance with the submerged lands environmental resource program.
- Performed biological assessments on marine, estuarine and fresh water systems.

Department of Fisheries and Aquatic Sciences, University of Florida, FL March 1996 – July 1999
Research Assistant

- Researched probable cause of decreased water clarity in Kings Bay/Crystal River.
- Established and maintained water chemistry monitoring program.

- Maintained monthly survey of submersed aquatic macrophytes begun in 1995.
- Recruited and trained citizen volunteers to provide supplemental water samples.
- Examined changes in aquatic macrophyte abundance and composition in relation to tidal storms in Kings Bay.
- Produced bathymetric maps of Florida lakes from field data.
- Performed aquatic macrophyte and water quality surveys of Florida lakes.

PEER REVIEWED PUBLICATIONS

- Gordu, F. B. Goodman, T. Cunningham, and A. Munson, 2014. Have we been here before? Hindcasting Lake Levels for MFL Evaluations Using a Decay Model. Florida Water Resources Journal, February 2014: 50-55 p
- Munson, Adam B and J. Delfino 2007. Minimum Wet-Season Flows and Levels in Southwest Florida Rivers. JAWRA. April 2007. 43(2): 522-532 p
- Munson, Adam B., J. Delfino, D. Leeper. 2005. Establishing MFLs; The Florida Experience. JAWRA. February 2005. 41(1): 1-10 p
- Munson, Adam B. 1999. Water Clarity in Kings Bay/Crystal River, Florida. Thesis, University of Florida, Gainesville, Florida 32604
- Mataraza, L. K., J. B. Terrell, A. B. Munson, and D. E. Canfield, Jr. 1999. Changes in submersed macrophytes in relation to tidal storm surges. J. Aquatic Plant Management. 37: 3-12 p

PEER REVIEWED TECHNICAL REPORTS

- Munson, A, M. Kelly, J. Morales, J. Hood and D. Leeper. 2009. Proposed Minimum Flows and Levels for the Rainbow River. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604
- Heyl, M. G., A. Munson, J. Hood, J. Morales, and M. Kelly. 2009. Anclote River System Recommended Minimum Florida and Levels, SWFWMD, Brooksville, Florida 34604
- Munson, A, M. Kelly, J. Morales, and D. Leeper. 2007. Proposed Minimum Flows and Levels for the Upper Segment of the Hillsborough River, From Crystal Springs to Morris Bridge, and Crystal Springs. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604
- Kelly, M., A. Munson, J. Morales, and D. Leeper. 2007. Proposed Minimum Flows and Levels for the Upper Segment of the Braden River, from Linger Lodge to Lorraine Road. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604
- Kelly, M., A. Munson, J. Morales, and D. Leeper. 2005. Proposed Minimum Flows and Levels for the Upper Segment of the Myakka River, from Myakka City to SR 72. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604
- Kelly, M., A. Munson, J. Morales, and D. Leeper. 2005. Alafia River Minimum Flows and Levels; Freshwater Segment Including Lithia and Buckhorn Springs. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604
- Kelly, M., A. Munson, J. Morales, and D. Leeper. 2005. Proposed Minimum Flows and Levels for the Middle Segment of the Peace River, from Zolfo Springs to Arcadia. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604

GOVERNMENTAL REPORTS

- Downing, H, Munson, A. Keifer, J, Peer Review of the Proposed Minimum Flow Recommendation for Charlie Creek, SWFWMD, Brooksville, Florida 34604
- Downing, H, Munson, A. Keifer, J, Peer Review of the Proposed Minimum Flow Recommendation for Horse Creek, SWFWMD, Brooksville, Florida 34604
- Jones, G., Munson, A., Hamel, M. 2023, Independent Technical Peer Review of the Recommended Minimum Flows for Upper and Middle Suwannee river, SRWMD, Florida. Live Oak, Florida (In Progress)
- Jones, G., Leonard, P., Munson, A. 2021, Independent Technical Peer Review of the Recommended Minimum Flows for Wakulla and Sally Ward Springs, Wakulla County, Florida. Tallahassee, Florida
- Dunn, B. Motz, L., Munson, A., 2020, Peer Review of the Reevaluation of the Lower Itchtucknee River & Priority Springs MFL, SRWMD, Live Oak, Florida, 32060
- Peene, S., Yobi, D., Munson, A., 2019 May, Final Peer Review of Re-evaluation of Minimum Flows and Levels for the Chassahowitzka River System, SWFWMD, Brooksville, Florida 34604
- Peene, S., Yobi, D., Munson, A., 2019 May, Final Peer Review of Re-evaluation of Minimum Flows and Levels for the Homosassa River System, SWFWMD, Brooksville, Florida 34604
- Jones, Gregg, Munson, A, Leonard, Paul, and Denton, Sherily, 2018 Scientific Peer Review of the Proposed Minimum Flows for the St. Marks River, SWFWMD, Brooksville, Florida 34604

- Peene, S., Watson, K. and Munson, A, 2016. Scientific Peer Review of the Proposed Minimum Flows for the Crystal River/Kings Bay System, SWFWMD, Brooksville, Florida 34604
- Munson A., F. Gordu and B. Goodman. 2010. Technical Memorandum: Evaluating Uncertainty and Climate Effects on Water Resource Constraints, Gainesville, Florida
- Leeper, D, A. Munson, and R. Gant. 2002. Proposed Minimum and Guidance Levels for Lakes Clinch, Egale, McLeod and Wales in Polk County, Florida and Lakes Jackson, Little Jackson, Letta and Lotela in Highlands County, Florida. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604
- Leeper, D., M. Kelly, A. Munson, and R. Gant. 2002. A Multi-Parameter Approach for Establishing Minimum Levels for Category 3 Lakes of the Southwest Florida Water Management District. Ecologic Evaluations Section, SWFWMD, Brooksville, Florida 34604

ABSTRACTS and PRESENTATIONS

- CAPSIM Users Group 2018 (August 9) Presented: Development and use of an operations simulation model for experiential learning in the classroom
- INTERFACE 2016 (April 21) Presented *Engaging Online Discussions for Large Enrollment Classes*
- FWRC, Orlando, May '13 Have we been here before? Hindcasting Lake Levels of MFL Evaluations Using a Decay Model
- AWRA; Albuquerque, Nov '11 Similar Minimum Flows or Levels do not Necessarily Mean Similar Protection: Compliance Measures Among Different Water Management Districts in Florida
- AWRA; Albuquerque, Nov '11 Special session chair for - *Evaluating and Complying with Traditional Source Limitations Established by the Development of Surface Water Constraints*
- International Society of River Science; St. Petersburg, July '09
  Development of freshwater minimum flow requirements for rivers in southwest Florida
- AWRA; New Orleans, Nov '08
  Development of Minimum Flows for the Rainbow River, Managing Surface Water Systems for Groundwater Withdrawals
- AWRA; Albuquerque, Nov '07
  Development of Seasonal Freshwater Minimum Flows Requirements
- AWRA; Baltimore, Nov '06
  Development of Minimum Flows and Levels for Freshwater Rivers in Southwest Florida
- IFC (Instream Flow Council); Vancouver B.C., April '06
  Invited Speaker; *Application of the Percent of Flow Approach in Determining Instream Flow Requirements in Southwest Florida*
- NALMS (North American Lake Management Society); Madison Wisconsin, Nov '01
  A Multi-parameter approach to Establishing Minimum Lake Levels in the Southwest Florida Water Management District
  Course; *Storm water practices to protect lakes*
- NALMS; Miami, Florida, Nov '00
  Current strategies for setting minimum levels in the Southwest Florida Water Management District
- Florida Aquatic Plant Management Society; Gainesville, Florida, March '97
  Changes in Submersed Macrophytes in Relation to Tidal Storms

INSTITUTIONAL SERVICE, LEADERSHIP and AWARDS

- 2023 Florida MBA Program Elective Teacher of the Year
- 2022 Florida MBA Program Elective Teacher of the Year
- 2021 Florida MBA Program Core Teacher of the Year
- 2021 Nominated Undergraduate Teacher of the Year, Warrington College of Business
- 2018 Florida MBA Program Core Teach of the Year
- 2018 WCBA Teaching Committee
- 2017 Florida Warrington College of Business Teacher of the Year
- 2017 Florida MBA Program Core Teach of the Year
- 2017 WCBA Teaching Committee
- 2016 Florida MBA Program Core Teach of the Year
- 2016 Faculty Advisor for UF Association for Information Systems
- 2016 WCBA Teaching Committee
- 2015 WCBA Teaching Committee
- 2015: Faculty Advisor for Gator Karate Club and Gator Bladers
- 2014 WCBA Teaching Committee

- 2014 Nominated for Judy Fisher Award
- 2014: Member of Pearson's Digital Advisory Board
- 2014: Faculty Advisor for Gator Karate Club
- 2013: Member of Pearson's Digital Advisory Board
- 2014: Faculty Advisor for Gator Karate Club
- 2012: University Minority Mentor
- 2011: University Minority Mentor
- 2011: University Commencement Marshal
- President of the Southwest Chapter of FLMS (Florida Lake Management Society), March '02

SERVICE for INDIVIGUAL STUDENTS

- Advisor for Charles Mathew Swets Honors Thesis in Spring 2023
- Have run independent student classes all of 2019 and Spring of 2020 with 4-5 students working with outside business sponsors on experiential learning projects
- Independent study for Alyssa Generalli in Spring 2017
- Independent study for Akhilesh Raperthy Spring 2017
- Advisor for Charles Thompsons Honors Thesis in Fall 2014
- Independent study for Jesselle English in Fall 2014
- 2012 Created Independent Study course for three students interested in preparing for the Fundamentals of Engineering Exam

CONTINUING EDUCATION SERVICE

- 2023: Course: Ethics I for Professional Engineers, Florida Board of Professional Engineers, Tallahassee, FL, United States. (February)
- 2023: Course: "Green Development," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2023)
- Continuing Education Program, "Project Management techniques I," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2019)
- 2019: Workshop, "Using Multi-Objective Evolutionary Algorithms to Support Water Resources Planning," AWRA, Salt Lake City, UT, United States. (November)
- 2018: Course: Ethics I for Professional Engineers, Florida Board of Professional Engineers, Tallahassee, FL, United States. (February)
- Continuing Education Program, "Administering Construction Projects," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2019)
- 2018: Course: "Ethics I for Professional Engineers," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2019)
- 2018: Course: "Florida Law and Rules 2017-2019," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2019)
- 2018: Course: "Green Development," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2019)
- Continuing Education Program, "Project Management techniques I," Florida Board of Professional Engineers, Tallahassee, FL, United States. (February 2019)
- 2016: Course: Project Management
- 2016: Course: Project Risk Management
- 2016: Course: Administering Construction Projects
- 2016: Course: Green Development
- 2016: Course: Project Management
- 2016: Course: Project Risk Management
- 2015: Course, Quality Project Management
- 2014: MIT December 16th, Course: Tackling the Challenges of Big Data
- 2013-2014: Institute for Industrial Engineers Seminar - Work Standards for Optimal Inventory Control, Gainesville, Florida.
- Cost Benefit Analysis in Infrastructure Engineering, Gainesville, Feb '10
- Florida's TMDL, BMAP, and Watershed Management, Gainesville, Oct '09
- Multivariate Statistics, Tampa, July '09
- Supervisory Development Program, Brooksville, Nov '08
- Utah State University; Brooksville, Oct '08

The use of River 2D in Evaluating Changes in Habitat associates with changes in River Flow

- DHI; Brooksville, Oct '07
  Course; Mike She – Introduction to Integrated Surface Water and Groundwater Modeling
- ASCE HEC-RAS; Atlanta, Georgia, Jan '03
  Course; A three-day intensive engineering course in Hydraulic Modeling
- Project Management; Brooksville, Florida, Nov '02
  Course; A two day course in project management by KEPNER TREGOE
- FLMS; Naples, June '02
- NALMS; Madison Wisconsin, Nov '01
  Course; *Storm water practices to protect lakes*
- Received CLM (Certified Lake Manager) Certification from NALMS, October '01
  FLMS; Tallahassee, Florida, May '01
- *Applied Environmental Statistics*; Tampa, Florida, October '00
  Course; Intense one-week course focusing on both parametric and non-parametric statistical analysis of environmental data
- *Taxonomy of Wetland Grasses, Sedges and Rushes*; Gainesville, Florida, September '00
  Course; Two-day course focusing on Plant Identification

CONSULTING

- Member (of three) of Scientific Peer Review Panel for the Proposed Minimum Flows for the Horse and Charlie Creek; 2023
- Member (of three) of Scientific Peer Review Panel for the Proposed Minimum Flows for the Middle Suwannee River system; 2023
- Member (of three) of Scientific Peer Review Panel for the Proposed Minimum Flows for the Upper Suwannee River system; 2023
- Member (of three) of Scientific Peer Review Panel for the Proposed Minimum Flows for the Lower Santa Fe and Suwannee River System; 2020
- Member of Scientific Peer Review Panel for the Proposed Minimum Flows for the Homosassa and Chassowitzka System; 2018
- Member of Scientific Peer Review Panel for the Proposed Minimum Flows for the Crystal River/Kings Bay System; 2016
  Client: NWFWMD Project Manager for Client: Gregg Jones
- Expert Witness for the SWFWMD regarding Proposed Minimum Flows for Crystal River/Kings Bay; 2017-201
- Member of Scientific Peer Review Panel for the Proposed Minimum Flows for the Crystal River/Kings Bay System; 2016
  Project Manager for Client: Doug Leeper
- Development of Quality Control Simulation model for Pearson Education; July 2014-2016
  Project Manager for Client: Megan Rees
- Development of HEC-RAS model for SWFWMD 2013-2014
  Project Manager for Client: Alan Foley

Curriculum Vitae for Dr. Martin Hamel

CURRICULUM VITAE

DR. MARTIN J. HAMEL

Associate Professor
University of Georgia
Warnell School of Forestry and Natural Resources
Mailing address: 125 Manorhaven Ct., Athens, GA 30606
Email: hamel@uga.edu

EDUCATION

PhD 2013 University of Nebraska, Lincoln; Natural Resource Sciences – Applied Ecology Specialization; Dissertation: Determining *Scaphirhynchus* Sturgeon Population Demographics and Dynamics: Implications for Range-Wide Management, Recovery, and Conservation; Advisor: M.A. Pegg

MS 2006 South Dakota State University; Wildlife and Fisheries Sciences – Fisheries Specialization; Thesis: Behavioral Responses of Rainbow Smelt to Sensory Deterrent Systems; Advisor: M.L. Brown

BS 2003 Upper Iowa University; Conservation Management and Biology; Senior Thesis Project: *Crepidostomum* in Rock Bass (*Ambloplites rupestris)*; Advisor: R. Klann

AAS 2001 Kirkwood Community College; Parks and Natural Resources

Graduate Certificate 2019 University of Nebraska, Lincoln – Family Financial Planning

PROFESSIONAL APPOINTMENTS

2022-present	Associate Professor, Warnell School of Forestry and Natural Resources, University of Georgia
2023-present	Associate Graduate Faculty Member, Iowa State University
2019-present	Adjunct Professor, School of Natural Resources, University of Nebraska
2019-2022	Assistant Professor, Warnell School of Forestry and Natural Resources, University of Georgia
2014-2019	Research Assistant Professor, School of Natural Resources, University of Nebraska-Lincoln
2008-2014	Research Technologist II – River Ecology Specialist, School of Natural Resources, University of Nebraska-Lincoln
2006-2008	Fisheries Biologist I, Nebraska Game and Parks Commission
2004-2006	Graduate Research Assistant, South Dakota State University

GRANTS/FUNDING

Hamel, M.J. Population dynamics of crappie in Georgia reservoirs. Georgia Department of Natural Resources, 2024-2026. Total award: $126,049.

Hamel, M.J., and A. Fox. Using microchemical analysis to monitor Atlantic and Shortnose Sturgeon habitat use in coastal Georgia Rivers. National Marine Fisheries Council, 2023-2024. Total award: $25,000 (split 50%).

Hamel, M.J., and J. Shelton. Spatial changes in trace element water chemistry across Piedmont rivers of Georgia with applications for native fish species conservation. Georgia Water Resources Institute, 2023-2024. Total award: $20,409.

Hamel, M.J., M.A Pegg, D. Buckmeier, and J. Koch. Creating a digital repository of calcified structures from known-age fishes. Multistate Conservation Grant Program – Wildlife and Sportfish Restoration, 2023-2026. Total award: $428,854

Hamel, M.J., and A. Fox. Assessing reproduction and recruitment dynamics of Atlantic and Shortnose Sturgeon in Georgia coastal rivers. National Marine Fisheries Council, 2022-2024. Total award: $786,586 (split 50%).

Hamel, M.J., B. Irwin, and J. Kirsch. Determining critical knowledge in life history of Lake Sturgeon in the Coosa River basin, Georgia. FY22 Science Support Partnership; U.S. Fish and Wildlife Service – 2021-2024. Total award: $85,770 (split 50%).

Hamel, M.J., and B. Irwin. Evaluation of Lake Sturgeon in the Coosa River. Georgia Department of Natural Resources. 2021-2023. Total award: $145,324 (split 70%-30%).

Hamel, M.J. Spatial changes in trace element water chemistry across river basins of Georgia with applications for fish movement. Office of Research, University of Georgia, 2021-2023. Total award: $23,562

Hamel, M.J. Determining movement dynamics, life history attributes, and angler exploitation of Suwannee Bass in Georgia. Georgia Department of Natural Resources, 2020-2021. Total award: $96,668

Hamel, M.J. Evaluating impacts on sportfish dynamics following the establishment of hydrilla in Lake Sinclair, Georgia. Georgia Power Company, 2020-2021 Total award: $137,500

Hamel, M.J., and M.A. Pegg. Blue Catfish Management in the Kansas River. Kansas Wildlife, Parks and Tourism, 2018-2020. Total award: $206,000 (split 50%)

Hamel, M.J., and M.A. Pegg. Status of Invasive Carps in the Kansas River. Kansas Wildlife, Parks and Tourism, 2018-2020. Total award: $200,000 (split 50%)

Hamel, M.J., and M.A. Pegg. Continuation: Biological Monitoring of Restored Chutes and Effectiveness in Offsetting Adverse Effects from Levee Construction at the Camp Ashland Training Site for the Nebraska Army National Guard (NEARNG) Environmental Branch. Nebraska Army National Guard, 2017 – 2020. Total award: $175,777 (split 50%)

Pegg, M.A., and M.J. Hamel. Pallid Sturgeon Movement in the Lower Platte River. Nebraska Game and Parks Commission, 2017-2018. Total award: $24,802 (split 50%)

Hamel, M.J., and M.A. Pegg. Biological Monitoring of Restored Chutes and Effectiveness in Offsetting Adverse Effects from Levee Construction at the Camp Ashland Training Site for the Nebraska Army National Guard (NEARNG) Environmental Branch. Nebraska Army National Guard, 2014 – 2017. Total award: $196,946 (split 50%)

Pegg, M.A., and M.J. Hamel. Riverine Sportfish Ecology and Management. Nebraska Game and Parks Commission, 2014 – 2019. Total award: $401,210 (split 50%).

Burgin, A., M. Pegg, M. Hamel, J. Spurgeon, and J. Hammen. Conservation of large-river fishes: a complementary approach to determine population structure and river-of-origin. UNL Research Council Grant-in-Aid, 2013. Total award $6,500

Not-awarded

Hamel, M.J., and A. Fox. A multi-pronged approach for addressing critical knowledge gaps for Atlantic and Shortnose Sturgeon recovery. National Marine Fisheries Council, 2024. Total award: $750,000 (split 50%) – *Not funded*

Irwin, B., M. Freeman, S. Wenger, M. Hamel, P. Hazelton, and A. Fox. Advancing understanding of flow effects on fishes and mussels to guide water management under a changing climate. Climate Adaptation Science Center. Total award: $183,798 – *Not funded*

Hamel, M.J. CAREER: A holistic approach to studying biotic responses to dam removal in a highly fragmented river system. National Science Foundation. 2021-2026. Total award: $885,237 – *Not funded*

Wenger, S., M. Hamel, and D. Leigh. Adaptively managing for Robust Redhorse: A range-wide collaboration to address data gaps, assess potential environmental threats, and implement conservation actions. 2022-2024. Total award: $261,288 – *Not funded*

Hamel, M.J. Determining population dynamics, movement, and natal river origin of the invasive Blue Catfish in major river systems of Georgia. Gulf States Marine Fisheries Commission. Total award: $48,302.10 – *Not funded*

Hamel, M.J., and A. Fox. Population dynamics and life history of Atlantic and Shortnose Sturgeon in the Altamaha and Savannah Rivers, Georgia, National Marine Fisheries Council, 2021-2023. Award requested: $551,248 (split 50%) – *Not funded*

Hamel, M.J., and J. Glomb. Examining the efficacy of novel techniques for assessing hydrilla and its ecological impact in large reservoirs. North American Plant Management Society, 2020. Award requested: $40,000 – *Not funded*

Hamel, M.J. Tributary Use of Pallid Sturgeon. Mohamed bin Zayed Species Conservation Fund. 2017. Award requested: $23,600 – *Not funded*

Pope, K., and M.J. Hamel. Effects of Invasive Carp on Algal and Invertebrate Biomass in the Missouri National Recreational River. National Park Service, 2016-2019. Award requested: $226,435 – *Not funded*

Hamel, M.J. Lower Platte River Biological Monitoring. Nebraska Environmental Trust, 2017-2020. Award requested: $76,237 – *Not funded*

Pope, K., and M.J. Hamel. Longitudinal Assessment of Aquatic Macroinvertebrate Communities in Backwater and Side-Channel Habitats in the 59-mile District of Missouri National Recreational River, 2015-2018. Award requested: $217,862 – *Not funded*

PEER-REVIEWED PUBLICATIONS

Authorship key: **Self** – bold; last position in author line corresponds to direct supervisor
Graduate Student Supervised – underline
Undergraduate Student Supervised - italics

41. **Hamel, M.J.**, and W.L. Gerrin. 2025. A regional analysis of trace element water chemistry with applications for reconstructing environmental life history of fishes. River Research and Applications https://doi.org/10.1002/rra.4417

40. Davis, V.D. P.C. Sakaris, T.F. Bonvechio, and **M.J. Hamel**. 2024. Assessing Blue Catfish population dynamics across varying introduction timelines in Georgia. North American Journal of Fisheries Management 44(5)1134-1146.

39. **Hamel, M.J.**, V.D. Davis, M.A. Pegg, D.L. Buckmeier, and J.D. Koch. 2024. Enhancing the Science of Age Estimation: The Creation of FishAge.org. Fisheries DOI: 10.1002/fsh.11187

38. Glomb, J.C., R.C. Lowe III, J.L. Shelton, and **M.J. Hamel**. 2024. A Multi-Prong Approach for Monitoring Hydrilla [Hydrilla verticillate (L. fil.) Royle] in Lakes and Reservoirs. Aquaculture, Fish, and Fisheries 4(6): e70018.

37. Yeager, J.L., T. Bonvechio, and **M.J. Hamel**. 2024. Population demographics and angler exploitation of Suwannee Bass. North American Journal of Fisheries Management 44:415-427.

36. Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2024. Movement dynamics and habitat selection of Suwannee bass *Micropterus notius*. Hydrobiologia 851(5):1153-1167.

35. Werner, J.P., Q.D. Dean, M.A. Pegg, and **M.J. Hamel**. 2023. Patterns in spatial use and movement of Silver Carp among tributaries and main-stem rivers: Insight from otolith microchemistry analysis. Biological Invasions 25(2):471-484. DOI: https://doi.org/10.1007/s10530-022-02927-y

34. Werner, J.P., Q.D. Dean, M.A. Pegg, and **M.J. Hamel**. 2022. Spatial variability of Silver Carp population demographics in a large tributary river. North American Journal of Fisheries Management 25(2):471-484.

33. Dean, Q.D., J.P. Werner, M.A. Pegg, and **M.J. Hamel**. 2022. Blue catfish population characteristics and dispersal along a great plains river gradient. River Research and Applications 38(6)1179-11191. DOI: 10.1002/rra.3985

32. Pegg, M.A., **M.J. Hamel**, J. Koch, and D. Buckmeier. 2022. Creating a digital repository of calcified structures from known-age fishes, a century in the making. Fisheries 47(8):357-360 DOI: 10.1002/fsh.10773

31. Dean, Q., M.A. Pegg, and **M.J. Hamel**. 2021. Temporal patterns of capture, retention rates and efficacy of bank poles in the Kansas River: A novel sampling tool for catfish managers. North American Journal of Fisheries Management 41:S379-S387 DOI: https://doi.org/10.1002/nafm.10627

30. **Hamel, M.J.**, J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2020. Uncovering unique plasticity in life history of an endangered centenarian fish. Nature Scientific Reports https://doi.org/10.1038/s41598-020-69911-1

29. **Hamel, M.J.**, J.J. Spurgeon, and M.A. Pegg. 2020. Catfish population characteristics among river segments with altered fluvial-geomorphic conditions in the Missouri River, NE, USA. North American Journal of Fisheries Management http://dx.doi.org/10.1002/nafm.10478

28. Goto, D., **M.J. Hamel**, J.J. Hammen, M.L. Rugg, M.A. Pegg, and V.A. Forbes. 2020. Divergent density feedback control of migratory predator recovery following sex-biased perturbations. Ecology and Evolution https://doi.org/10.1101/828244

27. Uerling, C.C., **M.J. Hamel**, and M.A. Pegg. 2019. Fish community response to habitat variables in two restored side channels of the lower Platte River, Nebraska. River Research and Applications 35:178-187; DOI: https://doi.org/10.1002/rra.3390.

26. Steffensen, K.D., **M.J. Hamel**, and J.J. Spurgeon. 2019. Post-stocking pallid sturgeon *Scaphirhynchus albus* growth, dispersal, and survival in the lower Missouri River. Journal of Applied Ichthyology 35:117-127.

25. **Hamel, M.J.,** M. Porath, and L.L. Pierce. 2018. Young Professional Survey Results: Member and non-member perspective on decisions to join AFS. A survey of attitudes and perceptions regarding membership to the American Fisheries Society. Fisheries; DOI: https://doi.org/10.1002/fsh.10066

24. Goto, D., **M.J. Hamel**, J.J. Hammen, M.L. Rugg, M.A. Pegg, and V.L. Forbes. 2018. Spatially dynamic maternal control of migratory fish recruitment pulses triggered by shifting seasonal cues. Marine and Freshwater Research 69:942-961.

23. Spurgeon J.J., **M.J. Hamel,** K.D. Steffensen, and M.A. Pegg. 2018. Spatial structure of large-river fish population across main-stem and tributary habitats. River Research and Applications 34:807-815.

22. Steffensen, K.D., and **M.J. Hamel**. 2018. Fin ray removal may be deleterious on *Scaphirhynchus* species. North American Journal of Fisheries Management 38:439-445.

21. Hammen, J.J., **M.J. Hamel**, M.L. Rugg, and M.A. Pegg. 2018. Population characteristics of Shovelnose Sturgeon during low- and high-water conditions in the lower Platte River, Nebraska. North American Journal of Fisheries Management 38:308-315.

20. **Hamel, M.J.**, A.J. Blank, J.J. Spurgeon, and M.A. Pegg. 2017. Assessment of a channel catfish population in a large open river system. Fisheries Management and Ecology 24:460-468.

19. Hammen, J.J., **M.J. Hamel**, M.L. Rugg, and M.A. Pegg. 2017. Habitat associations of shovelnose sturgeon *Scaphirhynchus platorynchus* (Rafinesque, 1820) in the lower Platte River, Nebraska. Journal of Applied Ichthyology DOI: 10.1111/jai.13513.

18. Phelps, Q.E., S.J. Tripp, **M.J. Hamel**, J. Koch, E.J. Heist, J.E Garvey, K.M. Kappenman, and M.A.H Webb. 2016. Status of knowledge of the Shovelnose Sturgeon (*Scaphirhynchus platorynchus*, Rafinesque, 1820). Journal of Applied Ichthyology 32:249-260.

17. **Hamel, M.J.**, J.J. Spurgeon, C.J. Chizinski, K.D. Steffensen, M.A. Pegg. 2016. Variability in age estimation results in ambiguity and false understanding of population persistence. North American Journal of Fisheries Management 36:514-522.

16. **Hamel, M.J.**, J.J. Spurgeon, M.L. Pegg, J.J. Hammen, and M.L. Rugg. 2016. Hydrologic variability influences distribution and occurrence of pallid sturgeon in a Missouri River tributary. River Research and Application 32:320-329.

15. Spurgeon, J.J., **M.J. Hamel**, M.A. Pegg. 2016. Multi-scale approach to hydrological classification provides insight to flow structure in an altered river system. River Research and Applications. DOI: 10.1002/rra.3041

14. **Hamel, M.J.**, M.L. Rugg, J.J. Hammen, and M.A. Pegg. 2015. Reproductive traits of shovelnose sturgeon *Scaphirhynchus platorynchus* (Rafinesque, 1820) in the Lower Platte River, Nebraska. Journal of Applied Ichthyology.

13. Spurgeon, J.J., **M.J. Hamel**, M.A. Pegg, and K.L. Pope. 2015. The global status of freshwater fish age validation studies and a prioritization framework for further research. Reviews in Fisheries Science and Aquaculture 23:329-345.

12. Hogberg, N.P., **M.J. Hamel**, and M.A. Pegg. 2015. Age-0 channel catfish *Ictalurus punctatus* growth related to environmental conditions in the channelized Missouri River, Nebraska. River Research and Applications. DOI: 10.1002/rra.2890.

11. **Hamel, M.J.**, M.A. Pegg, R.R. Goforth, Q.E. Phelps, K.D. Steffensen, J.J. Hammen, and M.L. Rugg. 2014. Range-wide age and growth characteristics of shovelnose sturgeon from mark-recapture data: implications for conservation and management. Canadian Journal of Fisheries and Aquatic Sciences 72:71-82.

10. Goto, D., **M.J. Hamel**, J.J. Hammen, M.L. Rugg, M.A. Pegg, and V.E. Forbes. 2014. Spatiotemporal variation in flow-dependent recruitment of long-lived riverine fish: Model development and evaluation. Ecological Modelling 296:79-92.

9. Rugg, M.L., **M.J. Hamel,** M.A. Pegg, and J.J. Hammen. 2014. Validation of annuli formation in pectoral fin rays from shovelnose sturgeon in the lower Platte River, Nebraska. North American Journal of Fisheries Management 34:1028-1032.

8. **Hamel, M.J.**, M.A. Pegg, J.J. Hammen, and M.L. Rugg. 2014. Population characteristics of pallid sturgeon in the lower Platte River, Nebraska. Journal of Applied Ichthyology 30:1362-1370.

7. **Hamel, M.J.**, J.D. Koch, K.D. Steffensen, M.A. Pegg, J.J. Hammen, and M.L. Rugg. 2014. Using mark-recapture information to validate and assess age and growth of long-lived fish species. Canadian Journal of Fisheries and Aquatic Sciences 71:559-566.

6. **Hamel, M.J.**, K.D. Steffensen, J.J. Hammen, and M.A. Pegg. 2013. Evaluation of PIT Tag Retention from Two Tagging Locations in Juvenile Pallid Sturgeon. Journal of Applied Ichthyology 29:41-43.

5. **Hamel, M.J.**, J.J. Hammen, and M.A. Pegg. 2012. Tag Retention of T-Bar Anchor Tags and Passive Integrated Transponder Tags in Shovelnose Sturgeon. North American Journal of Fisheries Management 32:533-538.

4. **Hamel, M.J.**, N.L. Richards, M.L. Brown, and S.R. Chipps. 2010. Avoidance of Strobe Lights by Zooplankton. Lake and Reservoir Management 26:212-216.

3. **Hamel, M.J.**, K.D. Steffensen, P.T. Horner, and S.M. Stukel. 2009. A comparison of catch rate with two different benthic trawls in the Missouri River. Journal of Freshwater Ecology 24:625-634.

2. **Hamel, M.J.**, M.L. Brown, and S.R. Chipps. 2008. Behavioral Responses of Rainbow Smelt to *in situ* Strobe Lights. North American Journal of Fisheries Management 28:394-401.

1. Neely, B.C., **M.J. Hamel**, and K.D. Steffensen. 2008. A Proposed Standard Weight Equation for Blue Suckers. North American Journal of Fisheries Management 28:1450-1452.

PUBLICATIONS IN REVIEW

4. Amman, B.R., W.L. Gerrin, S.F. McNair, P.D. Hazelton, J.L. Shelton, B.M. Shamblin, and **M.J. Hamel**. *In Review - Accepted.* Otolith increments and elements: assessing a recently discovered population of Weather Loach. Aquaculture Fish and Fisheries.

3. Rider, H.J., M.K. Morgan, A.T. Bond, J.D. Nolan, A.G. Fox, and **M.J. Hamel**. *In Review - Accepted.* Validating age estimates from pectoral fin spines and length frequency analysis of known-age Shortnose Sturgeon. Journal of the Southeastern Association of Fisheries and Wildlife Agencies.

2. Davis, V.D., P.C. Sakaris, T.F. Bonvechio, P.D. Hazelton, and **M.J. Hamel**. *In Review - Accepted.* Comparative diets of introduced Blue Catfish: differences across rivers and ontogenetic stages. Ecology of Freshwater Fishes.

1. **Hamel, M.J.**, M.A. Phillips, S.R. Perry, and B.J. Irwin. *In Review – Accepted.* First Evidence of Natural Reproduction and Recruitment of Reintroduced Lake Sturgeon in the Coosa River, Georgia. North American Journal of Fisheries Management.

TEXTBOOK CHAPTERS

Hamel, M.J., J.D. Koch, Z. Jackson, and S. Ludsin. (In Preparation). Overview of Management Philosophies in M. Quist, D. Isermann, and M. Wuellner, editors. Inland Fisheries Management in North America, 4th edition. American Fisheries Society, Bethesda, Maryland.

Pracheil, B.M., P.J. Braaten, E.B. Macias, C.S. Guy, D.P. Herzog, **M.J. Hamel**, J.C. Justice, A.R. Loeppky, J.M. Mollish, J.W. Simmons, and S. Tripp. 2024. Warmwater fish in rivers in S. Bonar, N.M. Silva, and K. Pope, editors. Standard methods for sampling North American freshwater fishes, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Phelps, Q.E., **M.J. Hamel**, S.A. Tripp, Z. Jackson, and R. Koenigs. 2017. Choice of structure – selecting the appropriate aging structure *in* M.C. Quist and D.A. Isermann, editors. Age and growth of fishes: principles and techniques. American Fisheries Society, Bethesda, Maryland.

THESIS AND DISSERTATION

Hamel, M.J. 2013. Determining *Scaphirhynchus* Sturgeon Population Demographics and Dynamics: Implications for Range-Wide Management, Recovery, and Conservation. Ph.D. Dissertation. University of Nebraska-Lincoln, Lincoln, Nebraska.

Hamel, M.J. 2006. Behavioral Responses of Rainbow Smelt to Sensory Deterrent Systems. M.S. Thesis. South Dakota State University, Brookings, South Dakota.

POPULAR ARTICLES AND INTERVIEWS

Hamel, M.J. 2024. AFS Sections Roundup: Education Section. Interview on the AFS Beneath the Surface podcast.

Hamel, M.J. 2021. Interview with the Labor Street Park podcast: https://www.youtube.com/watch?v=fLVAxNmTUuw

Hamel, M.J. 2020. What role does connectivity play in altered aquatic systems? River Stressors podcast.

Hamel, M.J. 2018. Airboats: A vital tool for research when chasing dinosaurs. Airboating 12(70):8-12

ORAL PRESENTATIONS

Authorship key: **Self** – bold
Graduate Student Supervised – underline
Undergraduate Student Supervised - italics

Hamel, M.J., V.D. Davis, M.A. Pegg, D. D.L. Buckmeier, and J.D. Koch. 2024. Enhancing the Science

of Age Estimation: The Create of Fishage.org. Southeastern Association of Fish and Wildlife Agencies annual conference. Augusta, GA.

Roop, H, J. Page, M. Rigglesford, W. Sims, P. Sakaris, **M.J. Hamel**, N. Whelan, and A. Williams. 2024. It takes a team: A five-year overview of the collaborative approach to management of northern snakehead in Georgia. Southeastern Association of Fish and Wildlife Agencies annual conference. Augusta, GA.

Rider, H., A. Bond, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Assessing Accuracy and Precision of Shortnose Sturgeon Aging Procedures with Fin Spines from Known-Age Fish. Southeastern Association of Fish and Wildlife Agencies annual conference. Augusta, GA.

Phillips, M., S. Perry, B. Irwin, and **M.J. Hamel**. 2024. Abundance and evidence of natural recruitment of reintroduced Lake Sturgeon in the Coosa River, Georgia-Alabama. Southeastern Association of Fish and Wildlife Agencies annual conference. Augusta, GA.

Nolan, J.D., B. Post, F. Scharf, E. Waldrop, A.G. Fox, and **M.J. Hamel**. 2024. Shortnose Sturgeon straying from home: partial migration revealed through a telemetry network. North American Sturgeon and Paddlefish Society annual meeting, Mobile, AL.

Hamel, M.J., B. Pracheil, P. Braaten, E. Barba Macias, C. Guy, D. Herzog, J. Justice, A. Loeppky, J. Michael Mollish, J. Simmons, and S. Tripp. 2024. Warmwater Fish in Rivers. American Fisheries Society annual meeting, Honolulu, HI.

Davis, V., **M.J. Hamel**, M.A. Pegg, D.L. Buckmeier, and J.D. Koch. 2024. Enhancing the Science of Age Estimation: The Create of Fishage.org. American Fisheries Society annual meeting, Honolulu, HI.

Bond, A.T., K. Morgan, H. Rider, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Using fin spine microchemistry to infer life history characteristics in Southern Atlantic Sturgeon. American Fisheries Society annual meeting, Honolulu, HI.

Rider, H.J., K. Morgan, A.T. Bond, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Mark-recapture reveals age and growth characteristics of Shortnose Sturgeon in Georgia, USA. American Fisheries Society annual meeting, Honolulu, HI.

Rider, H.J., K. Morgan, A.T. Bond, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Assessing accuracy and precision of Shortnose Sturgeon aging procedures with fin spines. American Fisheries Society annual meeting, Honolulu, HI.

Nolan, J.D., B. Post, F. Scharf, E. Waldrop, A.G. Fox, and **M.J. Hamel**. 2024. Shortnose Sturgeon straying from home: partial migration revealed through a telemetry network. American Fisheries Society annual meeting, Honolulu, HI.

Yeager, J., T. Bonvechio, and **M.J. Hamel**. 2024. Movement dynamics and habitat selection of Suwannee Bass (Micropterus notius) in Georgia. Mississippi Chapter of the American Fisheries Society, Tupelo, MS.

Dockendorf, K., T. Bonvechio, and **M.J. Hamel**. 2024. Data wanted for Flier – elusive acrobats with lighting quick bites. North Carolina Chapter of the American Fisheries Society, Sylva, NC.

Hamel, M.J. 2024. Fish microchemistry applications. Georgia Department of Natural Resources annual fisheries management meeting.

Bond, A.T., H. Rider, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. A statistical model to assess juvenile Atlantic Sturgeon age based on length and Julian day. Warnell Graduate Student Symposium. Athens, GA.

Nolan, J.D., A.T. Bond, H. Rider, A.G. Fox, and **M.J. Hamel**. 2024. Coastal migratory behavior of juvenile Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) from the South Atlantic Distinct Population Segment. Warnell Graduate Student Symposium. Athens, GA.

Rider, H., A. Bond, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Validating Shortnose Sturgeon age estimates from known age fish. Warnell Graduate Student Symposium. Athens, GA.

Phillips, M., S. Perry, B. Irwin, and **M.J. Hamel**. 2024. Age and growth characteristics of reintroduced Lake Sturgeon in the Coosa River, Georgia-Alabama. Warnell Graduate Student Symposium. Athens, GA.

Phillips, M., S. Perry, B. Irwin, and **M.J. Hamel**. 2024. Abundance and evidence of natural recruitment of reintroduced Lake Sturgeon in the Coosa River, Georgia-Alabama. Warnell Graduate Student Symposium. Athens, GA.

Simon, T., and **M.J. Hamel**. 2024. Can otolith microchemistry inform sportfish stocking program? Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Nolan, J.D., A.T. Bond, H. Rider, A.G. Fox, and **M.J. Hamel**. 2024. Coastal migratory behavior of juvenile Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) from the South Atlantic Distinct Population Segment. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Bond, A.T., H. Rider, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. A statistical model to assess juvenile Atlantic Sturgeon age based on length and Julian day. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Rider, H., A. Bond, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Validating Shortnose Sturgeon age estimates from known age fish. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Schumber, Z., M. Baker, B. Irwin, **M.J. Hamel**, and P. Hazelton. 2024. Habitat and landscape characteristics affecting *Corbicula* presence in the upper Savannah River drainage. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Browning, E., W. Gerrin, J. Shelton, B. Shamblin, **M.J. Hamel**, P. Hazelton, S. McNair, A. Musolf, B. Ammen, and R. Bryne. Aquatic nuisance species in Georgia: current status of weather loach research by UGA Warnell School of Forestry and Natural Resources. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Perry, S., M. Phillips, B. Irwin, and **M.J. Hamel**. 2024. Movement and habitat use of Lake Sturgeon in the Coosa River System in Georgia. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Phillips, M., S. Perry, B. Irwin, and **M.J. Hamel**. 2024. Abundance and evidence of natural recruitment of reintroduced Lake Sturgeon in the Coosa River, Georgia-Alabama. Georgia Chapter of the American Fisheries Society, LeGrange, GA.

Phillips, M., S. Perry, B. Irwin, and **M.J. Hamel**. 2024. Growth and abundance of reintroduced Lake Sturgeon in the Coosa River, Georgia – Alabama. Southern Division of the American Fisheries Society, Chattanooga, TN.

Nolan, J.D., A.T. Bond, H. Rider, A.G. Fox, and **M.J. Hamel**. 2024. Coastal migratory behavior of juvenile Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) from the South Atlantic Distinct Population Segment. Southern Division of the American Fisheries Society, Chattanooga, TN.

Rider, H., A. Bond, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. Validating Shortnose Sturgeon age estimates from known age fish. Southern Division of the American Fisheries Society, Chattanooga, TN.

Faherty, T., J. Shelton, P. Hazelton, **M.J. Hamel**, W. Gerrin, S. McNair, K. Evans, and B. Shamblin. 2024. Mitochondrial and nuclear genetic markers suggest at least three introductions of Weather Loach (*Misgurnus anguillicaudatus*) introductions in Georgia. Southern Division of the American Fisheries Society, Chattanooga, TN.

Bond, A.T., H. Rider, J. Nolan, A.G. Fox, and **M.J. Hamel**. 2024. A statistical model to assess juvenile Atlantic Sturgeon age based on length and Julian day. Southern Division of the American Fisheries Society, Chattanooga, TN.

Hamel, M.J., J.D. Koch; M.A. Pegg, and D. Buckmeier. 2023. A proposed publicly available known-age fish structure repository. 7th International Otolith Symposium, Vina Del Mar, Chile – South America.

Phillips, M., S. Perry, B. Irwin, and **M.J. Hamel**. 2023. Growth and longevity of Lake Sturgeon in the Coosa River in Georgia. American Fisheries Society annual meeting, Grand Rapids, MI.

Perry, S., M. Phillips, B. Irwin, and **M.J. Hamel.** 2023. Movement and habitat use of Lake Sturgeon in the Coosa River system in Georgia. American Fisheries Society annual meeting, Grand Rapids, MI.

Davis, V., R. Bringolf, P. Sakaris, T. Bonvechio, and **M.J. Hamel.** 2023. Diet composition of introduced blue catfish populations in four major rivers in Georgia. American Fisheries Society annual meeting, Grand Rapids, MI.

Gerrin, W., *B. Amman,* P. Hazelton, J. Shelton, B. Shamblin, and **M. Hamel**. 2023. CSI Warnell: Investigating the source, dispersal, and recruitment of the Weather Loach using otolith microchemistry. Georgia Water Resources Conference, Athens, GA.

Gerrin, W., J. Shelton, **M. Hamel**, P. Hazelton, B. Shamblin, and S. McNair. 2023. Georgia Weather Loach Update: Tools for Rapid Response to ANS Issues. Gulf and South Atlantic Regional Panel on Aquatic Nuisance Species. Jekyll Island, GA.

McNair, S., W. Gerrin, J. Shelton, B. Shamblin, **M.J. Hamel**, and P. Hazelton. 2023. Approach of the loach: Using genetics to better understand a newly invasive species, the Weather Loach (*Misgurnus anguillicaudatus*), in Georgia. Georgia Water Resources Conference, Athens, GA.

Byrne, R., W. Gerrin, J. Shelton, B. Shamblin, **M.J. Hamel**, P. Hazelton, S. McNair. 2023. Aquatic nuisance species in Georgia: current status of the Weather Loach. Georgia Water Resources Conference, Athens, Ga.

Hamel, M.J. and W. Gerrin. 2023. Trace element concentrations in Georgia waters: applications for future fish microchemistry studies. Georgia Chapter of the American Fisheries Society, St. Simons, GA.
Davis, V., T. Bonvechio, R. Bringolf, P. Sakaris, and M. Hamel. 2023. Diet composition of introduced blue catfish populations in four major rivers of Georgia. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

Phillips, M., B. Irwin, and **M. Hamel**. 2023.Growth and longevity of Lake Sturgeon in the Coosa River system in Georgia. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

Amman, B., W. Gerrin, P. Hazelton, J. Shelton, B. Shamblin, and M. Hamel. 2023. CSI Warnell: Investigating the source, dispersal, and recruitment of the Weather Loach using otolith microchemistry. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

Perry, S., B. Irwin, and **M. Hamel**. 2023. Movement and habitat use of Lake Sturgeon in the Coosa River system in Georgia. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

McNair, S., W. Gerrin, J. Shelton, B. Shamblin, M. Hamel, and P. Hazelton. 2023. Approach of the loach: Using genetics to better understand a newly invasive species, the Weather Loach (*Misgurnus anguillicaudatus*), in Georgia. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

D'Ercole M., **M. Hamel**, P. Hazelton, A. Kaeser, and A. Fox. 2023. Flow regime and recruitment in Gulf Sturgeon in the Apalachicola River. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

Carroll-Everett, L., N. Nibbelink, C. Cox, **M. Hamel**, R. Guy, and J. Flowers. 2023. Interpreting partial information provided by fishery-independent surveys towards a holistic understanding of estuarine fishes. Georgia Chapter of the American Fisheries Society, St. Simons, GA.

Phillips, M., and **M. Hamel**. 2022. Coosa River Lake Sturgeon Reintroduction. Invited speaker for the Oconee River Chapter of Trout Unlimited, Athens, GA.

Phillips, M., S. Perry, and **M. Hamel**. 2022. Population dynamics of reintroduced Lake Sturgeon (Acipenser fulvescens) in the Coosa River, GA-AL. Lake Sturgeon Working Group annual meeting – virtual.

Perry, S., M. Phillips, and **M. Hamel**. 2022. Lake Sturgeon movement and habitat use in the Coosa River system. Lake Sturgeon Working Group annual meeting – virtual.

Gerrin, W., J. Shelton, B. Shamblin, **M. Hamel**, and P. Hazelton. 2022. Dirty loaches: an update on the Georgia Oriental Weatherfish (*Misgurnus anguillicaudatus*) invasion. Georgia Chapter of the American Fisheries Society, Jekyll Island, GA.

D'Ercole, M. A. Fox, **M. Hamel**, and A. Kaeser. 2022. Flow regime and recruitment in Gulf Sturgeon in the Apalachicola River, FL. Georgia Chapter of the American Fisheries Society, Jekyll Island, GA.

Hamel, M.J., H.J. Roop, P.C. Sakaris, A.S. Williams, and J. Page. 2022. Where have all the snakehead gone? Two years of monitoring of a wild population of Northern Snakehead *Channa argus* in Gwinnett County, Georgia. Georgia Chapter of the American Fisheries Society, Jekyll Island, GA.

Werner, J.P., Q.D. Dean, **M.J. Hamel**, and M.A. Pegg. 2022. Patterns in special use and movement of Silver Carp among tributaries and main-stem rivers: Insight from otolith microchemistry analysis. Nebraska Chapter of the American Fisheries Society, Grand Island, NE.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2022. Suwannee bass movement, life-history, and angler exploitation in Georgia. Georgia Chapter of the American Fisheries Society, Jekyll Island, GA.

Glomb, J.C., R.C., Lowe, J.L. Shelton, and **M.J. Hamel**. 2022. Novel methods for assessing hydrilla spread in Lake Sinclair, Georgia. Georgia Chapter of the American Fisheries Society, Jekyll Island, GA.

Hamel, M.J., J. Koch, D. Buckmeier, and M.A. Pegg. 2022. A proposed publicly available known-age fish structure repository. Georgia Chapter of the American Fisheries Society annual meeting, Jekyll Island, GA.

Buckmeier, D., **M.J. Hamel**, J. Koch, and M.A. Pegg. 2022. A proposed publicly available known-age fish structure repository. Southern Division of the American Fisheries Society annual meeting, Charlestown, SC.

Koch, J., **M.J. Hamel**, D. Buckmeier, and M.A. Pegg. 2021. A proposed publicly available known-age fish structure repository. American Fisheries Society annual meeting, Baltimore, MD.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2021. Movement dynamics and habitat use of Suwannee Bass in Georgia. Georgia DNR Research Meeting - virtual.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2021. Movement dynamics and habitat use of Suwannee Bass in Georgia. American Fisheries Society annual meeting, Baltimore, MD.

Glomb, J.C., R.C., Lowe, and **M.J. Hamel**. 2021. Assessing hydrilla and its impacts on sportfish communities. American Fisheries Society annual meeting, Baltimore, MD.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2021. Suwannee Bass movement and life-history in the Withlacoochee River, Georgia. Southern Division of the American Fisheries Society – Virtual Conference *Invited symposium speaker.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2021. Suwannee Bass movement and life-history in the Withlacoochee River, Georgia. Florida Chapter of the American Fisheries Society – Virtual Conference.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2021. Movement dynamics of Suwannee Bass in the Withlacoochee River, Georgia. Georgia Chapter of the American Fisheries Society – Virtual Conference.

Glomb, J., R. Lowe III, J. Shelton, and **M.J. Hamel**. 2021. Assessing hydrilla spread and subsequent impacts on sportfish communities in Lake Sinclair, Georgia. Florida Chapter of the American Fisheries Society – Virtual Conference.

Glomb, J., R. Lowe III, J. Shelton, and **M.J. Hamel**. 2021. Assessing hydrilla spread and subsequent impacts on sportfish communities in Lake Sinclair, Georgia. Southern Division of the American Fisheries Society – Virtual Conference.

Glomb, J., R. Lowe III, J. Shelton, and **M.J. Hamel**. 2021. Into the weeds: Assessing hydrilla occurrence using novel methods in Lake Sinclair, Georgia. Georgia Chapter of the American Fisheries Society – Virtual Conference.

Dean, Q.D., J.P. Werner, M.A. Pegg, and **M.J. Hamel**. 2021. Efficacy and temporal capture patterns of bank poles in the Kansas River: a novel sampling tool for catfish managers. Texas Chapter of the American Fisheries Society 2021 Virtual Annual Meeting.

Hamel, M.J, Q.D. Dean, and J.P. Werner**.** 2020. Connectivity across altered riverscapes: understanding how scale influences fish populations. American Fisheries Society national meeting – virtual.

Hamel, M.J. 2020. Connectivity: Bridging the gap between research, management, and people. Invited speaker for the Oconee River Chapter of Trout Unlimited, Athens, GA.

Werner, J.P., Q.D. Dean, **M.J. Hamel**, and M.A. Pegg. 2020. Variability in silver carp population demographics in the Kansas River, Kansas. Wyoming/Colorado Chapter of the American Fisheries Society, Laramie, WY.

Werner, J.P., Q.D. Dean, **M.J. Hamel**, and M.A. Pegg. 2020. Variability in silver carp population demographics in the Kansas River, Kansas. Kansas Natural Resources Conference, American Fisheries Society, Manhattan, KS.

Werner, J.P., Q.D. Dean, **M.J. Hamel**, and M.A. Pegg. 2020. Variability in silver carp population demographics in the Kansas River, Kansas. Nebraska Chapter of the American Fisheries Society, Lincoln, NE.

Dean, Q.D., J.P. Werner, **M.J. Hamel**, and M.A. Pegg. 2020. Population Characteristics and Movement Patterns of Blue Catfish in the Kansas River, Kansas. Nebraska Chapter of the American Fisheries Society, Lincoln, NE.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2020. Plasticity in life-history traits: adaptations of pallid sturgeon to human perturbations. Southern Division of the American Fisheries Society, Little Rock, AK.

Hamel, M.J., and M.A Pegg. 2020. Large-river catfish fisheries: insight into catfish community dynamics across varying spatial and temporal patterns. Catfish 2020: The Third International Catfish Symposium, Little Rock, AK.

Dean, Q.D., J.P. Werner, **M.J. Hamel**, and M.A. Pegg. 2020. Population Characteristics and Movement Patterns of Blue Catfish in the Kansas River, Kansas. Catfish 2020: The Third International Catfish Symposium, Little Rock, AK.

Dean, Q.D., **M.J. Hamel**, and M.A. Pegg. 2020. Temporal patterns of capture, retention rates and efficacy of bank poles in the Kansas River. Catfish 2020: The Third International Catfish Symposium, Little Rock, AK.

Hamel, M.J., J.P. Werner, Q.D. Dean, and M. A. Pegg. 2020. The influence of connectivity on native and invasive fish populations in the Kansas River. Georgia Chapter of the American Fisheries Society, Augusta, GA.

Werner, J.P., Q.D. Dean, **M.J. Hamel**, and M.A. Pegg. 2019. Variability in silver carp population demographics in the Kansas River. American Fisheries Society national meeting, Reno, NV.

Dean, Q.D., J.P. Werner, **M.J. Hamel**, and M.A. Pegg. 2019. Population Characteristics and Movement Patterns of Blue Catfish in the Kansas River, Kansas. American Fisheries Society national meeting, Reno, NV.

Werner, J.P., Q.D. Dean, **M.J. Hamel**, and M.A. Pegg. 2019. Status of invasive carps in the Kansas River. Nebraska Rivers and Streams Technical Committee meeting. Wood River, NE.

Dean, Q.D., J.P. Werner, **M.J. Hamel**, and M.A. Pegg. 2019. Blue catfish management in the Kansas River. Nebraska Rivers and Streams Technical Committee meeting. Wood River, NE.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2018. Linking differential life-history traits of pallid sturgeon throughout the Missouri River basin. International Conference on the Biology of Fishes, Calgary, Alberta.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2018. Linking differential life-history traits of pallid sturgeon throughout the Missouri River basin. American Fisheries Society national meeting, Atlantic City, NJ.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2018. Diverging life history characteristics of pallid sturgeon throughout the Missouri River basin. Midwest Fish and Wildlife Conference, Lincoln, NE.

Uerling, C.C., **M.J. Hamel**, M.A. Pegg. 2017. Fish community response to restored side channels on the Lower Platte River, Nebraska. Midwest Fish and Wildlife Conference, Lincoln, NE.

Spurgeon, J.J., **M.J. Hamel**, and M.A. Pegg. 2017. Origin and movement patterns of channel catfish using otolith microchemistry. Midwest Fish and Wildlife Conference, Lincoln, NE.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2017. Examination of life history characteristics of pallid sturgeon throughout the Missouri River basin. Midwest Fish and Wildlife Conference, Lincoln, NE.

Hamel, M.J. 2016. University of Nebraska-Lincoln Research. 2017. What we have learned and where we are going. Nebraska Rivers and Streams Technical Committee meeting. Gretna, NE.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2016. Examination of life history characteristics of pallid sturgeon throughout the Missouri River basin. American Fisheries Society annual meeting – Invited symposium speaker. Kansas City, MO.

Uerling, C.C., **M.J Hamel**, and M.A. Pegg. 2016. Monitoring a Restored Side Channel on the Lower Platte River, NE. American Fisheries Society annual meeting, Kansas City, MO.

Hamel, M.J., and J.D. Koch. 2016. Age and Growth Workshop for the NE/KS AFS joint chapter meeting. Manhattan, KS.

Uerling, C.C., **M.J. Hamel,** and M.A. Pegg. 2016. Monitoring a Reconnected side channel on the Lower Platte River Nebraska. Nebraska and Kansas Joint Chapter Meeting of the American Fisheries Society, Manhattan, KS.

Turner, D., M. Pegg, and **M.J. Hamel**. 2016. Diet analysis of flathead catfish in the Red River of the North. Nebraska and Kansas Joint Chapter Meeting of the American Fisheries Society, Manhattan, KS.

Uerling, C.C., **M.J. Hamel**, and M.A. Pegg. 2016. Monitoring fish and macroinvertebrate response to a restored side channel on the Platte River. Midwest Fish and Wildlife Conference, Grand Rapids, MI.

Hamel, M.J., J.J. Spurgeon, C. Chizinski, and M.A. Pegg. 2015. Ignorance is bliss: poor aging precision from an un-validated fish aging structure has deleterious effects on understanding population dynamics. Nebraska Chapter Meeting of the American Fisheries Society, Nebraska City, NE.

Hamel, M.J., J.J. Spurgeon, C.J. Chizinski, K.D. Steffensen, and M.A. Pegg. 2015. Ignorance is bliss: Poor aging precision from an un-validated fish aging structure has deleterious effects on understanding population dynamics. Missouri River Natural Resources Conference, Nebraska City, NE.

Uerling, C.C., K. Turek, M.A. Pegg, and **M.J. Hamel**. 2015. A Biological assessment of the Shell Creek watershed. Nebraska Chapter Meeting of the American Fisheries Society, Nebraska City, NE

Spurgeon, J.J., **M.J. Hamel**, and M.A. Pegg. 2015. Inter-annual variability in climate and anthropogenic stressors drive hydrological character of the Platte River, NE. Nebraska Chapter Meeting of the American Fisheries Society, Nebraska City, NE.

Hamel, M.J., M.A. Pegg, R.R. Goforth, Q.E. Phelps, K.D. Steffensen, J.J. Hammen, and M.L. Rugg. 2014. Range-Wide Age and Growth Characteristics of Shovelnose Sturgeon from Mark-Recapture Data: Implications for Conservation and Management. Midwest Fish and Wildlife Conference, Kansas City, MO.

Hamel, M.J., M.A. Pegg, R.R. Goforth, Q.E. Phelps, K.D. Steffensen, J.J. Hammen, and M.L. Rugg. 2014. Using Mark-Recapture to Determine Population Dynamics of *Scaphirhynchus* Sturgeon: Implications for Pallid Sturgeon Recovery. Missouri River Natural Resources Conference, Nebraska City, NE.

Hogberg, N.P., **M.J. Hamel**, and M.A. Pegg. 2014. Channel catfish first-year growth in relation to environmental conditions in the Missouri River, Nebraska. Joint Meeting of the Nebraska and Iowa Chapters of the American Fisheries Society. Council Bluffs, IA.

Hogberg, N.P., **M.J. Hamel**, and M.A. Pegg. 2014. Long Term Trends in Age-0 Channel Catfish Growth in the Channelized Missouri River, Nebraska. 74th Annual Midwest Fish and Wildlife Conference. Kansas City, MO.

Hamel, M.J., J.J. Hammen, M.L. Rugg, and M.A. Pegg. 2013. Hydrologic Variability Influences Distribution and Occurrence of Pallid Sturgeon in the Lower Platte River. The Missouri River Natural Resources Conference, Jefferson City, MO.

Rugg, M., **M.J. Hamel**, J.J. Hammen, and M.A. Pegg. 2013. Reproductive potential of shovelnose sturgeon in the Lower Platte River, Nebraska. The Missouri River Natural Resources Conference, Jefferson City, MO.

Rugg, M., **M.J. Hamel**, J.J. Hammen, and M.A. Pegg. 2013. Reproductive potential of shovelnose sturgeon in the Lower Platte River, Nebraska. NE Chapter of the American Fisheries Society, Gretna, NE.

Hamel, M.J., J.J. Hammen, M.L. Rugg, and M.A. Pegg. 2013. Hydrologic Variability Influences Distribution and Occurrence of Pallid Sturgeon in the Lower Platte River. NE Chapter of the American Fisheries Society, Gretna, NE.

Hamel, M.J., J.J. Hammen, and M.A. Pegg. 2012. Sturgeon growth characteristics: The good, the bad, and the ugly. NE Chapter of the American Fisheries Society, Gretna, NE.

Hammen, J.J., **M.J. Hamel**, and M.A. Pegg. 2012. Geomorphology and instream habitat associations of shovelnose sturgeon in the lower Platte River, NE. NE Chapter of the American Fisheries Society, Gretna, NE.

Hamel, M.J., J.J. Hammen, and M.A. Pegg. 2012. Sensitivity of using fin rays for shovelnose sturgeon age, growth, and dynamic rate functions. American Fisheries Society national meeting, St. Paul, MN.

Hamel, M.J., K.D. Steffensen, J.J. Hammen, and M.A. Pegg. 2012. Evaluation of two tagging locations for injection of PIT tags in pallid sturgeon. Missouri River Natural Resources Conference, Pierre, SD.

Goto, D., **M.J. Hamel**, J.L. Hammen, M.L. Rugg, M.A. Pegg, and V. Forbes. Spatially Explicit Hydrological Influences on Individual Variation in Shovelnose Sturgeon Reproduction and Recruitment in a Regulated River. American Fisheries Society national meeting, St. Paul, MN.

Hamel, M.J., M.A. Pegg, and J.J. Hammen. 2011. Tag retention of T-bar anchor tags and PIT tags in shovelnose sturgeon. American Fisheries Society national meeting, Seattle, WA**.**

Hammen, J.L., **M.J. Hamel**, and M.A. Pegg. 2011. Seasonal distributions, characteristics, and population dynamics of shovelnose sturgeon in the Lower Platte River, NE. American Fisheries Society national meeting, Seattle, WA**.**

Hamel, M.J., M.A. Pegg, and J.J. Hammen. 2011. Tag retention of T-bar anchor tags and PIT tags in shovelnose sturgeon. Missouri River Natural Resources Committee meeting, Nebraska City, NE.

Hamel, M.J., M.A. Pegg, and J.J. Hammen. 2011. Tag retention of T-bar anchor tags and PIT tags in shovelnose sturgeon. NE chapter of the American Fisheries Society, Gretna, NE.

Hammen, J.J., **M.J. Hamel**, and M.A. Pegg. 2011. Shovelnose sturgeon movements within the lower Platte River, NE. NE chapter of the American Fisheries Society, Gretna, NE.

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2010. Population characteristics of pallid sturgeon in the lower Platte River, Nebraska. NE chapter of the American Fisheries Society, Ponca, NE.

Hammen, J.L., **M.J. Hamel**, T.L. Anderson, and M.A. Pegg. 2010. Population dynamics of shovelnose sturgeon in the Lower Platte River, Nebraska. NE chapter of the American Fisheries Society, Ponca, NE.

Anderson, T.L., **M.J. Hamel**, and M.A. Pegg. 2010. Age and growth of shovelnose sturgeon in the lower Platte River, Nebraska. NE chapter of the American Fisheries Society, Ponca, NE.

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2010. Population characteristics of pallid sturgeon in the lower Platte River, Nebraska. Missouri River Natural Resources Committee meeting, Nebraska City, NE.

Hammen, J.J., **M.J. Hamel**, and M.A. Pegg. Shovelnose sturgeon movements within the lower Platte River, NE. Midwest Fish and Wildlife Conference, Minneapolis, Minnesota.

Anderson, T.L., **M.J. Hamel**, J.J. Hammen, and M.A. Pegg. 2010. Shovelnose sturgeon, *Scaphirhynchus platorynchus* in the Lower Platte River. Thesis Defense.

Hammen, J.J., **M.J. Hamel**, T.L. Anderson, and M.A. Pegg. 2010. Shovelnose sturgeon population dynamics and seasonal population characteristics in the Lower Platte River. Missouri River Natural Resources Conference, Nebraska City, Nebraska.

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2010. Sturgeon management in the lower Platte River, Nebraska. Platte River Symposium – University of Nebraska-Lincoln, Lincoln, NE.

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2009. Population characteristics of pallid sturgeon in the lower Platte River. Platte River Symposium – University of Nebraska-Lincoln, Lincoln, NE.

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2009. Population characteristics of pallid sturgeon in the lower Platte River, Nebraska. Midwest Fish and Wildlife Conference, Springfield, IL.

Hammen, J.L. **M.J. Hamel**, T.L. Anderson, and M.A. Pegg. 2009. Shovelnose sturgeon population dynamics and seasonal population characteristics in the Lower Platte River, Nebraska. Midwest Fish and Wildlife Conference, Springfield, IL.

Hamel, M.J., and K.D. Steffensen. 2008. Age and growth of shovelnose sturgeon in the Missouri River. American Fisheries Society national meeting, Ottawa, Ontario.

Hamel, M.J., and K.D. Steffensen. 2008. Influence of mesh size and trawling techniques on catch of benthic fish species of the Missouri River. NE chapter of the American Fisheries Society, Gretna, NE.

Hamel, M.J., K.D. Steffensen, P. Horner, and S. Stukel. 2008. Influence of mesh size and trawling techniques on catch of benthic fish species of the Missouri River. Missouri River Natural Resources Conference (MRNRC) & BiOp Forum, Nebraska City, NE.

Hamel, M.J., and K.D. Steffensen. 2007. Influence of mesh size and trawling techniques on catch of benthic fish species of the Missouri River. Midwest Fish and Wildlife Conference, Madison, WI.

Hamel, M.J., M.L. Brown, and S.R. Chipps. 2007. Use of hydroacoustics to assess free-ranging rainbow smelt responses to sensory deterrents. Midwest Fish and Wildlife Conference, Madison, WI – Invited symposium speaker.

Hamel, M.J., D.W. Everitt, and J.D. Haas. 2007. Intensive and extensive tracking of pallid and shovelnose sturgeon movements in the middle Missouri River. MRNRC & BiOp Forum, Nebraska City, NE.

Hamel, M.J., D.W Everitt, and J.D. Haas. 2007. Intensive and extensive tracking of pallid and shovelnose sturgeon movements in the middle Missouri River. AFS Tri-State (Nebraska, Kansas, and Iowa) Chapter Annual Meeting, Council Bluffs, IA.

Hamel, M.J., M.L. Brown, and S.R. Chipps. 2006. Behavioral Responses of Rainbow Smelt to Sensory Deterrence Systems. Midwest Fish and Wildlife Conference, Omaha, NE.

Hamel, M.J., N.S. Richards, M.L. Brown, and S.R. Chipps. 2006. Rainbow Smelt Responses to Sensory Deterrence Systems. AFS Dakota Chapter Annual Meeting, Chamberlain, SD.

Hamel, M.J., and N.S. Richards. 2005. Influence of Underwater Sound and Strobe Lights on Deterrence Behavior of Rainbow Smelt in Lake Oahe, South Dakota. SDGFP Annual Winter Fisheries Meeting. Yankton, SD.

INVITED PRESENTATIONS/SEMINARS

Hamel, M.J. 2024. Fish microchemistry applications. Georgia Department of Natural Resources annual fisheries management meeting.

Hamel, M.J., B. Pracheil, P. Braaten, E. Barba Macias, C. Guy, D. Herzog, J. Justice, A. Loeppky, J. Michael Mollish, J. Simmons, and S. Tripp. 2024. Warmwater Fish in Rivers. American Fisheries Society annual meeting, Honolulu, HI.

Yeager, J.W., T.F. Bonvechio, and **M.J. Hamel**. 2021. Suwannee Bass movement and life-history in the Withlacoochee River, Georgia. Southern Division of the American Fisheries Society – Virtual Conference *Invited symposium speaker.

Hamel, M.J, Q.D. Dean, and J.P. Werner**.** 2020. Connectivity across altered riverscapes: understanding how scale influences fish populations. Invited speaker to the American Fisheries Society annual virtual conference to be presented in the symposium entitled, "Confronting present and emerging stressors in rivers for global fisheries conservation."

Hamel, M.J. 2020. Connectivity: Bridging the gap between research, management, and people. Invited speaker for the Oconee River Chapter of Trout Unlimited, Athens, GA

Hamel, M.J. 2019. Plasticity in life history traits in a long-lived sturgeon. Invited presentation to the American Fisheries Society student sub-unit of the University of Georgia. Athens, GA, October 2019.

Hamel, M.J. 2018. Connectivity – Bridging the gap between research, management, and people. Invited seminar presented to the University of Wisconsin-LaCrosse. LaCrosse, WI, November 2018

Hamel, M.J. 2018. How do we assess fishes in rivers and streams? Invited seminar presented to the University of Nebraska-Kearney, November 2018.

Hamel, M.J. 2018. Connectivity – Bridging the gap between research, management, and people. Invited seminar presented to the University of Illinois Champaign-Urbana, Champaign, IL, October 2018

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, and K.D. Steffensen. 2018. Linking differential life-history traits of pallid sturgeon throughout the Missouri River basin. Invited presentation to the International Conference on the Biology of Fishes, Calgary, Alberta 2018

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2010. Population characteristics of pallid sturgeon in the lower Platte River, Nebraska. Invited presentation to the Nebraska Game and Parks Commission, Lincoln, NE, January 2010

Hamel, M.J., M.A. Pegg, J.J. Hammen, and T.L. Anderson. 2009. Population characteristics of pallid sturgeon in the lower Platte River, Nebraska. Invited presentation to the Nebraska Game and Parks Commission, Lincoln, NE, January 2009

Hamel, M.J., M.L. Brown, and S.R. Chipps. 2006. Behavioral Responses of Rainbow Smelt to Sensory Deterrence Systems. Invited presentation to the Midwest Fish and Wildlife Conference, Omaha, NE.

WORKSHOPS/CONFERENCE SYMPOSIA

2024 Co-organizer of "Views on Undergraduate Curricula in Fisheries" symposium for the American Fisheries Society annual meeting in Honolulu, HI.

2024 Fish Aging. Workshop prepared for the American Fisheries Society's Hutton Program at Charlie Elliot Wildlife Management Area.

2024 Co-organizer of "Atlantic Sturgeon Recovery" workshop for the Southern Division of the American Fisheries Society annual meeting in Chattanooga, TN.

2024 Co-organizer of "Atlantic and Gulf Sturgeon Aging" workshop for the Southern Division of the American Fisheries Society annual meeting in Chattanooga, TN.

2024 Co-organizer of "Atlantic and Gulf Sturgeon Status, Conservation, and Management" symposium for the Southern Division of the American Fisheries Society annual meeting in Chattanooga, TN.

2022 Co-organizer of "Experiences with and Views of Online Learning in the Aftermath Campus Shutdowns" symposium for the American Fisheries Society annual meeting in Spokane, WA.

2021 Getting into graduate school. Workshop prepared for the UGA American Fisheries Society student sub-unit and presented to the Warnell School of Forestry and Natural Resources fisheries and wildlife majors (February 18, 2021).

2020 Co-organizer of "Black Bass Biodiversity, Conservation, and Management" symposium for the Southern Division meeting of the American Fisheries Society – virtual.

2019 Organizer of "Sturgeon population dynamics: a compilation of techniques, tools, and research" symposium for the Southern Division meeting of the American Fisheries Society in Little Rock, AR.

2016 Fish age and growth considerations and procedures. Presented as part of the continuing education program for the 2016 joint conference between the Nebraska and Kansas chapters of the American Fisheries Society, Manhatten, KS.

ACADEMIC EXPERIENCE

Courses taught:

Estimating Reproductive Parameters in Fish; Co-instructor with Dr. Pete Hazelton (FISH 8950) – Spring 2024 (4 hr)
Age and Growth of Fishes (FISH 8300) – Spring 2023 (2 hr)
Fisheries Management/Lab (FISH 5360/7360 & FISH 5360L/7360L) – Fall 2019-2024 (3 hr)
Natural Resources Conservation (FANR 1100e) – Summer 2023-2024 (3 hr)
Teaching Practicum (FANR 8900) – Fall 2022 & 2023 (3 hr)
Conservation Conversations (FYOS 1001) – Spring 2021 and Fall 2022-2024 (1 hr)
Information and Strategies for Pursuing a Successful Career in Fisheries (FYOS 1001) – Spring & Fall 2020, and Fall 2021 (1 hr)
Fisheries Problems: How to Develop a Scientific Review Paper (FISH 7980) – Spring 2020 & Spring 2022 (3 hr)
Senior Project in Forestry and Natural Resources Management – Spring 2020 (1 hr)

Ichthyology (NRES 489/889) – Spring 2019 (3 hr)
Stream Ecology (NRES 481/881) – Fall 2015 (3 hr)
Exploring Fisheries Opportunities and Research; Co-Instructor with Dr. Mark Pegg (NRES 163) – Annually 2013-2019 (1 hr)

Guest lectures:

Fish Physiology (FISH 4500/6500): University of Georgia – Fall 2024
Society and Natural Resources (FANR 3400): University of Georgia – Fall 2023
Georgia Fishes Field Study (Maymester course): University of Georgia – Spring 2021
Environmental Biology of Fishes: University of Georgia – Spring 2020
Freshwater Management Techniques: University of Nebraska-Kearney (Invited, 11/2018)
Fisheries Science (NRES 463/863): Annual guest lectures (2013-2018)
Ichthyology (NRES 489/889): Annual guest lectures (2013-2018)
Topics in Applied Ecology (NRES 801): Fall 2017

Graduate students supervised:

Garrison Forrester, University of Georgia – M.S. (anticipated 2027)
Alan Bond, University of Georgia – Ph.D. (anticipated 2027)
Hunter Rider, University of Georgia – M.S. (anticipated 2025)
Joseph Nolan, University of Georgia – M.S. (anticipated 2025)
Russell Wilson (co-advised with Dr. Fox), University of Georgia – M.S. (anticipated 2024)
Savannah Perry, University of Georgia – M.S. (anticipated 2024)
Matthew Phillips, University of Georgia – M.S. (anticipated 2024)
Victoria Davis, University of Georgia – M.S. (2023)
(Presently employed by the University of Georgia)
Mark D'Ercole (co-advised with Dr. Fox), University of Georgia – M.S. (2023)
Joel Yeager, University of Georgia – M.S. (2022)
(Current PhD student at the University of Southern Mississippi)
Jackson Glomb, University of Georgia – M.S. (2022)
(Presently employed by the University of Illinois)
Jacob Werner, University of Nebraska-Lincoln – M.S. (2020)
(Presently employed by the Nebraska Game and Parks Commission)
Quintin Dean, University of Nebraska-Lincoln – M.S. (2020)
(Presently employed by the Texas Parks and Wildlife Department)
Caleb Uerling, University of Nebraska-Lincoln - M.S (2018)
(Presently employed by Montana Fish, Wildlife, and Parks)

Employees supervised:

David Higginbotham, University of Georgia – Research Professional III (2019-present)
Victoria Davis, University of Georgia – Research Professional I (2023-present)
Joel Yeager, University of Georgia – Research Professional I (2022-2023)
Troy Simon, University of Georgia – Research Professional III (2021-2022)

Graduate student committee member:

Katie Morgan, University of Georgia – M.S. (spring 2026)
Michaela Collins, University of Georgia – MNR (spring 2026)
Zoe Scribner, University of Georgia – M.S. (anticipated spring 2026)
Andrew Lyons, University of Georgia – Ph.D. (anticipated spring 2028)
Sarah Weaver, University of Georgia – M.S. (anticipated fall 2026)
Juliana Kaloczi, Iowa State University – M.S. (anticipated fall 2025)
Zachary Schumber, University of Georgia – M.S. (2024)
Lauren Carroll, University of Georgia – M.S. (2023)
Kieran Merritt, University of Georgia – M.S. (2022)

Zach Horstman, University of Nebraska-Lincoln – M.S. (2020)
Henry Hansen, University of Nebraska-Lincoln – M.S. (2019)
Dylan Turner, University of Nebraska-Lincoln – M.S. (2018)
Stephen Siddons, University of Nebraska-Lincoln – M.S. (2016)

Undergraduate Senior/Honors Thesis Advisor:

Brendan Amman, University of Georgia (2023)
Brandon Filaski, University of Georgia (2021)
Kaitlyn Elder, University of Nebraska-Lincoln (2019)

ACADEMIC SERVICE

2020-2022 & 2023-present	Administrative Leadership Committee for the Warnell School of Forestry and Natural Resources - UGA
2023	Dean Greene 5-year Administrative Review Committee, UGA
2023	Warnell Outstanding Teaching Assistantship Ad Hoc Awards Committee - UGA
2023	Search Committee for Wildlife Lecturer position – Warnell School of Forestry and Natural Resources - UGA
2023-present	University Libraries Committee - UGA
2020-present	Graduate Affairs Committee for the Warnell School of Forestry and Natural Resources - UGA
2020-2021	Curriculum Committee for the Warnell School of Forestry and Natural Resources - UGA
2021	Search Committee for Landscape Conservation Genetics position - Warnell School of Forestry and Natural Resources - UGA
2015-2019	Community Engagement Committee for the UNL School of Natural Resources
2015-2019	Safety and Facilities Committee for the UNL School of Natural Resources
2012-2013	Staff Advisory Professional Development Committee for the UNL School of Natural Resources
2012-2013	Staff and Professional/Managerial Committee for the UNL School of Natural Resources

CONTINUING EDUCATION, JOB-RELATED TRAINING COURSES, AND AWARDS

Meaningful Student Interaction with Perusall, UGA – Center for Teaching and Learning (2024)
Warnell Fall Graduation Commencement Speaker, University of Georgia (2022)
Teaching & Learning Conference, University Systems of Georgia, Athens, GA (2023)
Active Learning Workshop, Center for Teaching & Learning, University of Georgia (2023)
Perusall Exchange – An event for innovators in social learning, virtual (2022)
Biennial Conference on University Education in Natural Resources, UNL – virtual (2022)
Teaching Academy Fellows Program, University of Georgia (2020)
Creating a Sustainable Writing Practice, University of Georgia (Fall 2020)
Faculty Search Committee Training, University of Georgia (11/16/2020)
Promotion and Tenure Dossier Preparation Workshop, University of Georgia (5/19/2020)
Promotion and Tenure Procedure Workshop, University of Georgia (12/17/210)
Active Learning workshop, University of Georgia, Athens, GA (11/2019)
Leadership workshop, Midwest Fish and Wildlife Conference, Lincoln, NE (02/2017)
Leadership workshop, *Becoming an EPIIC Leader*, by Marquita Qualls - Entropia Consulting (10/2016)
Mentoring workshop, *Enhancing Productivity and Professional Relationships*, UNL, (09/2016)
Leadership workshop, Midwest Fish and Wildlife Conference, Grand Rapids, MI (02/2016)
Personal Income Taxation, CYAF 840, University of Nebraska-Lincoln, Spring semester 2017
Principles of Risk Management, CYAF 824, University of Nebraska-Lincoln, Spring semester 2016
Foundations in Financial Planning CYAF 821, University of Nebraska-Lincoln, Spring semester 2016

Investing for the Family's Future, CYAF 883, University of Nebraska-Lincoln, Summer semester 2016
Estate Planning, CYAF 823, University of Nebraska-Lincoln, Fall semester 2016

Awards:
2024 –Professional of the Year in Fisheries Science and Research, Georgia Chapter of the American Fisheries Society (Runner-up).
2024 – Professional Team of the Year, Georgia Chapter of the American Fisheries Society.
2023 – Early Career Fisheries Education Award, American Fisheries Society.
2022 – Creative Teaching Award nomination from the Warnell School, University of Georgia (not awarded).
2021 – Creative Teaching Award nomination from the Warnell School, University of Georgia (not awarded).
2021 – Alumni Award for Early Career Teaching, University of Georgia.
2018 – Institute of Agriculture and Natural Resources Travel Award, University of Nebraska.
2018 – Early Career Professional Award, Education Section of the American Fisheries Society.
2016 – Institute of Agriculture and Natural Resources Travel Award, University of Nebraska.
2016 – Award of Merit – Fish Management Section of the American Fisheries Society. Awarded for significant achievement and contribution to fisheries science.
2015 – Service Award – Nebraska Chapter of the American Fisheries Society. Awarded for recognition of personal contributions to the achievement and enhancement of fisheries science.
2011 – Best Oral Presentation – Nebraska Chapter of the American Fisheries Society. Awarded for the presentation entitled, "Tag retention of t-bar anchor tags and PIT tags in shovelnose sturgeon."
2007 – Best Professional Poster Presentation Award. Missouri River Natural Resource Conference

Student awards:
2024 – Best Student Presentation (2nd place) – Georgia Chapter of the American Fisheries Society – Matt Phillips, M.S.
2024 – Best Student Presentation (3rd place) – Georgia Chapter of the American Fisheries Society – Hunter Rider, M.S.
2024 – Ronnie J. Gilbert Scholarship award winner – Hunter Rider
2024 – Georgia AFS travel grant recipient – Hunter Rider
2023 – Selected recipient for the annual travel award presented by the Invasive and Introduced Species Section of the American Fisheries Society – Victoria Davis
2021 – First Runner Up for Best Student Presentation – Southern Division of the American Fisheries Society virtual conference. M.S. Student – Jackson Glomb
2021 – Overall winner for Best Student Presentation – American Fisheries Society annual conference in Baltimore, MD. M.S. Student – Jackson Glomb
2021 – Runner Up for the Skinner Award from the American Fisheries Society. M.S. Student – Joel Yeager

PROFESSIONAL SERVICE

2024:	Symposium Moderator, American Fisheries Society annual meeting
2024	Distinguished Service Award Committee, American Fisheries Society
2023-present	President, American Fisheries Society, Education Section
2023-present	Governing Board member, American Fisheries Society
2022:	Standing declaration for the litigation of Center of Biological Diversity vs. US Department of Transportation Maritime Administration's America's Marine Highway Program
2022:	Standing declaration for the litigation of Center of Biological Diversity vs. US Army Corps of Engineers Nationwide Permit 12 regarding the Keystone XL Pipeline
2021:	Symposium Moderator, Southern Division of the American Fisheries Society
2021-present	Appointed member of the AFS Financial Planning and Procedures Committee

2020-present Advisory Board for Field Sciences, Upper Iowa University
2020-present: Independent Science Advisory Panel member – Advisor to the Missouri River Recovery Implementation Committee
2020-2021: Associate Editor, Special Issue: Catfish 2020 – the 3rd International Catfish Symposium in *North American Journal of Fisheries Management*
2020: Session Moderator, Southern Division of the American Fisheries Society
2020: Standing declaration for the litigation of Center of Biological Diversity vs. US Army Corps of Engineers
2020: Standing declaration for the litigation of Center of Biological Diversity vs. US Environmental Protection Agency
2019-present Faculty advisor for the UGA student subunit of the American Fisheries Society
2016-2023: Secretary/Treasurer, American Fisheries Society, Education Section
2004-present: Member, American Fisheries Society
2020-present: Member, North American Sturgeon and Paddlefish Society
2014-2019: Early Career professional committee of the North Central Division of the American Fisheries Society
2014-2019: Faculty advisor for the UNL archery club
2007-2019: Member, Nebraska Chapter of the American Fisheries Society
2015-2018: Member, Communications Strategic Planning Committee, American Fisheries Society
2014-2018: Member, Awards Committee for the North Central Division of the American Fisheries Society
2017: Session Moderator, Midwest Fish and Wildlife Conference, Lincoln, NE
2015-2016: President, Nebraska Chapter of the American Fisheries Society
2011-2014: Member, Iowa Chapter of the American Fisheries Society

CONSULTING

2023 Suwannee River Water Management District. Peer reviewer for "The minimum flow and minimum water levels" reports for the upper and middle Suwannee River.

2017 U.S. Army Corps of Engineers. Peer Reviewer of "Middle Mississippi River Sturgeon Chub Model"

MANUSCRIPT REVIEWS:

2024 *North American Journal of Fisheries Management (6), Journal of Fish Biology (2), Journal of Oceanology and Limnology (2)*

Previous
Ecohydrology, Ecology of Freshwater Fishes, North American Journal of Fisheries Management, Transactions of the American Fisheries Society, Canadian Journal of Fisheries and Aquatic Sciences, Environmental Biology of Fishes, Journal of Applied Ichthyology, Fisheries Management and Ecology, River Research and Applications, Lakes and Reservoirs

TECHNICAL REPORTS

Hamel, M.J., S. Perry, and B. Irwin. 2023. Movement and Distribution of Lake Sturgeon in the Coosa River. Annual Performance Review, US Fish and Wildlife Service Science Support Program.

Hamel, M.J., S. Perry, and M. Phillips. 2023. Population demographics and dynamics of introduced Lake Sturgeon in the Coosa River basin, Georgia. Annual Performance Review, Georgia Department of Natural Resources.

Hamel, M.J., S. Perry, and B. Irwin. 2022. Movement and Distribution of Lake Sturgeon in the Coosa River. Annual Performance Review, US Fish and Wildlife Service Science Support Program.

Hamel, M.J., S. Perry, and M. Phillips. 2022. Population demographics and dynamics of introduced Lake Sturgeon in the Coosa River basin, Georgia. Annual Performance Review, Georgia Department of Natural Resources.

Hamel, M.J., and J. Yeager. 2022. Determining movement dynamics, life history attributes, and angler exploitation of Suwannee Bass in Georgia. Completion Report, Georgia Department of Natural Resources, Atlanta, GA

Hamel, M.J., and J. Yeager. 2021. Determining movement dynamics, life history attributes, and angler exploitation of Suwannee Bass in Georgia. Annual Performance Review, Georgia Department of Natural Resources, Atlanta, GA

Hamel, M.J., and M.A. Pegg. 2019. Riverine Sportfish Ecology and Management. Project completion report (No. F-75-R) to Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2018. Sturgeon Management in the Platte River, Nebraska: Implications to a Declining Sportfish Population. Project completion report to Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2018. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J., and M.A. Pegg. 2017. Sturgeon Management in the Platte River, Nebraska: Implications to a Declining Sportfish Population. Annual Performance Report to Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2017. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J., and M.A. Pegg. 2016. Sturgeon Management in the Platte River, Nebraska: Implications to a Declining Sportfish Population. Annual Performance Report to Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2016. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J., and M.A. Pegg. 2015. Sturgeon Management in the Platte River, Nebraska: Implications to a Declining Sportfish Population. Annual Performance Report Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2015. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J., and M.A. Pegg. 2014. Sturgeon Management in the Platte River, Nebraska: Implications to a Declining Sportfish Population. Annual Performance Report to Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2014. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J., and M.A. Pegg. 2013. Sturgeon Management in the Platte River, Nebraska: Implications to a Declining Sportfish Population. Annual Performance Report to Nebraska Game and Parks Commission, Lincoln, NE

Hamel, M.J., and M.A. Pegg. 2013. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J. and M.A. Pegg. 2012. Sturgeon Management in the Platte River, Nebraska. Annual Performance Report. Nebraska Game and Parks Commission, Lincoln, NE.

Hamel, M.J., and M.A. Pegg. 2012. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J. and M.A. Pegg. 2011. Sturgeon Management in the Platte River, Nebraska. Annual Performance Report. Nebraska Game and Parks Commission, Lincoln, NE.

Hamel, M.J., and M.A. Pegg. 2011. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J. and M.A. Pegg. 2010. Sturgeon Management in the Platte River, Nebraska. Annual Performance Report. Nebraska Game and Parks Commission, Lincoln, NE.

Hamel, M.J., and M.A. Pegg. 2010. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Hamel, M.J. and M.A. Pegg. 2009. Sturgeon Management in the Platte River, Nebraska. Annual Performance Report. Nebraska Game and Parks Commission, Lincoln, NE.

Hamel, M.J., and M.A. Pegg. 2009. Sturgeon Management in the Platte River, Nebraska. Annual Performance Review, U.S. Fish and Wildlife Service, Endangered Species Permitting – Denver, CO.

Curriculum Vitae for Jeremy Wyss

TETRA TECH

Jeremy R. Wyss
Environmental Scientist

EDUCATION

BS, Watershed Hydrology & Management (Landscape Level Water Quality Emphasis), University of Wisconsin Stevens Point (2005)

YEARS OF EXPERIENCE

19 Years

YEARS WITH TETRA TECH

16 Years

OFFICE LOCATION

Atlanta, GA

AREAS OF EXPERTISE

Watershed Modeling
Water Quality Modeling
Lake Hydrodynamic Modeling
Lake Water Quality Modeling
BMP Modeling
GIS Analysis

Jeremy Wyss is an Environmental Scientist with over 19 years of professional experience specializing in watershed modeling, receiving water modeling, environmental sample collection and analysis, and results interpretation and presentation. He has experience with watershed hydrology and water quality modeling using Loading Simulation Program in C++ (LSPC), Hydrological Simulation Program—Fortran (HSPF), lake modeling using Environmental Fluid Dynamics Code (EFDC), urban storm water runoff modeling using Storm Water Management Model (SWMM), hydraulic modeling using Hydrologic Engineering Center River Analysis System (HEC-RAS), culvert hydraulics using the HY-8 Culvert Hydraulic Analysis Program, best management practice (BMP) assessment and optimization using System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN) and Best Management Practice Decision Support System (BMPDSS) Navigator. He also has experience in geographic information system (GIS) related programs such as ArcView and ArcGIS, database management programs such as Access, SAS, Excel and Water Resources Database (WRDB), and results interpretation and visualization programs such as MOVEM, Tecplot and WRDB Graph.

TETRA TECH PROJECT EXPERIENCE

Caloosahatchee River and Estuary HSPF Model Update and ArcGIS-Based Nitrate Load Estimation Toolkit (ArcNLET) Model, Florida Department of Environmental Protection (DEP), Caloosahatchee River Watershed, FL (2/2024-Ongoing) Lead Watershed Modeler. Providing an update to the 2017 HSPF model and evaluating septic system loads using the ArcNLET model. Updating the models to use the latest land use coverage and data through 2023. Updating the hydrological and water quality portions of the model. Preparing memos to summarize model updates. Presenting information on the model updates to stakeholders for input. Creating a load estimation tool for use in updating allocations and project credits.

Lake Istokpoga Watershed Model, Florida Department of Environmental Protection (DEP), Lake Istokpoga, FL (12/2019-04/2020) Modeler. Revised setup and calibration of an HSPF model for the Lake Istokpoga watershed to meet client and stakeholder expectations for TMDLs for impaired waterbodies within the watershed. Reviewed the existing HSPF model calibration, updated the calibration parameterization to be more robust, and prepared a model calibration report. Updated model will be used by Florida Department of Environmental Protection to develop TMDLs for the impaired waterbodies within the watershed.

Trout Lake Watershed Model Update for MFL, St Johns River Water Management District, Trout Lake, FL (8/2018-1/2019) Modeler. Updated an existing HSPF model, as part of St Johns River Water Management District's minimum flows and levels program determination (MFL), to address peer review comments and extend the model in time. Reviewed the existing HSPF model calibration, updated the calibration parameterization to be more robust, and prepared a model calibration report. St Johns River Water Management District used the updated model to update Trout Lake's MFL.

Lake Strom Thurmond Dilution Study, Sage Automotive Interiors, Lake Strom, GA and SC (8/2018-10/2018) Modeler. Used the Upper Savannah River watershed LSPC model and Lake Strom Thurmond EFDC hydrodynamic model to

evaluate critical flow conditions at a downstream public water supply intake location. Dye tracer studies were evaluated with the EFDC model to estimate expected antimony concentrations at the downstream public water supply intake location under various discharge scenarios. A report documenting the study's methodology and findings was prepared and provided to the client. The client was able to use the studies information to contest discharge limits imposed on them by South Carolina.

Lake Russell Critical Flow Calculation, Santee Cooper, Lake Russell, GA and SC (8/2018-10/2018) Modeler. Used the Lake Russell EFDC hydrodynamic model and Upper Savannah River watershed LSPC model to evaluate critical flow conditions at the clients discharge location. Critical flows were calculated from both the EFDC model and LSPC model at the discharge location and compared for differences. A report documenting the study's methodology and findings was prepared and provided to the client. The client was able to contest the critical flows calculated by South Carolina and prove that they should be allowed a larger discharge limit.

Modeling Support for Caloosahatchee for TMDL Refinement and BMAP Allocation, Florida Department of Environmental Protection (DEP), Tallahassee, FL (1/2016-3/2017) Watershed Modeler. Updated calibration of the HSPF model for the Caloosahatchee watershed to address Florida Department of Environmental Protection and stakeholder comments on the calibration completed by another firm. Provided a 2-day HSPF model training workshop and model technical transfer for the client. This model along with an updated EFDC were used to re-evaluate the current nutrient TMDL for Caloosahatchee to determine if the TMDL should be modified, and to update the allocations to individual stakeholders through the basin management action plan process.

EMPLOYMENT HISTORY

Tetra Tech Inc, Environmental Scientist, 2008–Ongoing
University of Washington Stevens Point Dissolved Gas Laboratory, Project Researcher, 2005–2008
University of Washington Stevens Point Water and Environmental Analysis Laboratory, Student Laboratory Technician, 2004–2005