

Responses to Comment No. 258 Exhibit 7

<i>Public Comment</i>	USACE Response
<p><i>The Cities of Augusta and North Augusta find that the Act has basic flaws in language that have led the Corps to erroneous interpretation and subsequent errors in methodology in the Draft Report and subsequent amendments.</i></p>	<p>Thank you for your comment.</p>
<p><i>The Cities find that the Guidance repeats the flawed language of the Act and contains its own basic flaws in implementation instructions that have led the Corps to erroneous interpretations and subsequent errors in their report.</i></p>	<p>Thank you for your comment.</p>
<p><i>The Cities find the Draft Report riddled with errors and inaccuracies, both in fact and in analyses, so as to bring into question the quality of the information upon which critical decisions are to be made, especially because those decisions bring with them permanent threatening and negative consequences to the communities.</i></p>	<p>Two internal reviews and an external review were conducted on the PAAR and the review the comments were incorporated into this Final PAAR.</p>
<p><i>The hydraulic models used in the Analysis Report are all flawed and do not accurately represent the actual water surface profiles on the Savannah River. At least one major problem is the selection of the value for the roughness coefficient “n” in Manning’s equation for open channel flow, resulting in predicted water levels much higher than reality.</i></p> <p><i>The accurate predictions of water levels are of great importance to the design of any water level management structure and are even more paramount when those structures are fixed weirs. In those cases, the designers only get one chance to get it right. They have not gotten it right yet, as proven by the Fixed Weir Pool Simulation conducted by the Corps in February 2019.</i></p>	<p>Appendix A - Engineering of the draft report contains a detailed discussion of the roughness coefficients utilized in the hydraulic model, specifically Section 2.2.2.3. The National Land Cover Database was obtained for the study area and used to inform manning’s n values for the model geometry. An n value of 0.033 was used to describe the channel from NSBLD to the CSX railroad bridge eight miles upstream. An n values of 0.031 was used for the channel portion of the model upstream of the CSX railroad bridge. As stated in Appendix A, manning’s n values for natural channels are difficult to quantify outside of a laboratory setting and are subject to the professional judgment and experience of the hydraulic engineer. During the study phase, prior to the release of the draft report, the hydraulic model was reviewed through the Corps ATR (Agency Technical Review) process. The review confirmed that the roughness coefficients and other model parameters were appropriate for use in this study.</p> <p>As described in the Appendix A- Engineering – Attachment 4, The conditions seen during the simulation were not representative of conditions we would expect to see under the recommended plan. Prior to</p>

<p><i>Observations on-site during the February 2019 river drawdown show clearly that during modest flows, the pool behind the Lock and Dam has very little fall end-to-end, and thus acts much more like a lake than it does like a river.</i></p> <p><i>These facts demonstrate major flaws that affect all of the hydraulic profile computer models and bring into question the validity of the entire Report and its conclusions, which must be withdrawn, corrected, and reissued for public comment.</i></p> <p><i>An early drawdown to calibrate and validate the HEC RAS hydraulic model should (and could have easily been conducted) have been conducted prior to the development and use of modeling results in the selection of alternatives.</i></p>	<p>the simulation, releases from Thurmond Dam were relatively high due to sustained rainfall during the preceding months. These high flows (and resulting higher pools levels) prior to the simulation made the impacts of the simulated 5,000cfs appear more dramatic.</p> <p>Another factor that made the impacts during the simulation more dramatic was the state of the flashboards at Stevens Creek Dam. Ordinarily the flashboards allow Stevens Creek to even out the flows released from Thurmond’s hydropower generation, keeping flows and river levels more consistent over the course of twenty-four hours. The flashboards were not in place during the simulation (due to some maintenance issues and the high flows during the winter months) so the hydropower releases from Thurmond were translated directly downstream to Augusta. Hydropower generation requires high releases from Thurmond Dam, but these releases are only sustained for a short period (for example, JST may release 18,000cfs for one hour). During non-generation periods flows are significantly lower, perhaps only a few hundred cfs. This was the case during the simulation, with high peak flows due to hydropower generation, with periods of very low flows in between. The low-flow periods between hydropower generation are when the water levels were at their lowest during the simulation. Ordinarily Stevens Creek would even things out to produce a “mean daily” flow of around 5,000cfs, unfortunately the flashboards being down for maintenance resulted in the low flow impacts being magnified downstream in Augusta.</p>
<p><i>Selection of the SHEP 2012 Plan as the No Action Alternative is illogical, because it cannot be built following the WIIN Act 2016, which de-authorized the Lock and Dam.</i></p> <p><i>Selection of this plan also distorts the base line conditions of the complete set of water surface profiles upon which the entire Draft Report is based. The No Action Alternative, by contrast, should be the actual “existing conditions” that prevailed before and on the date of enactment of the WIIN Act, which are higher. Using the real stages as the base line would be more accurate. For example, the actual existing operating</i></p>	<p>As stated in Section 1.0 of the draft report: “The deepening project, SHEP, was authorized in the WRRDA 2014. The project contained a mitigation feature to provide fish passage at the NSBLD. The fish passage feature was designed to keep the existing lock and dam in place, while building a bypass channel for fish to migrate to the Augusta Shoals, historic spawning grounds for sturgeon and important for other fish including the Georgia state listed robust redhorse. However, this original design is not consistent with the 2016 WIIN Act. Therefore, for the purposes of this analysis, the original design is considered the No Action Alternative (NAA) in the comparison of alternatives during plan formulation. The current and future conditions described in this document used as the base of comparison for the effects analysis do not include the original design, the SHEP 2012 Fish Passage.”</p>

<p><i>level at the Fifth Street gauge should be 114.2, not 113.2 (NAVD 1988). The alternatives analysis of the Draft Report should be withdrawn and re-analyzed with a corrected No Action Alternative.</i></p>	<p><i>The USACE Savannah District's focus is to follow the legislation requirements of the 2016 Water Infrastructure Improvements for the Nation Act as well as meet the mitigation requirements of the Savannah Harbor Expansion project while preserving the functionality of the upstream pool of the New Savannah Bluff Lock and Dam for the purposes of recreational navigation and water supply. The USACE Savannah District must work with the state and federal resource agencies to recommend a plan with the highest probability to get fish species, in particular the shortnose and Atlantic sturgeon above the lock and dam to meet our mitigation requirements of the Savannah Harbor Expansion project and comply with the endangered species act by selecting the alterative with best chance to get sturgeon past the lock and dam to additional spawning habitat. Any of the alternatives being evaluated, including 1-1 and the NAA, will lower the water levels from what is out there under existing conditions just by varying degrees as a result of the creation of the fish passage structure.</i></p>
<p><i>If the SHEP 2012 Plan should be retained as the No Action Alternative (notwithstanding the previous paragraph of objection), the SHEP 2012 Plan must be considered as an actual viable alternative, capable of being implemented if selected. It was approved by all agencies, was "shovel-ready" before the WIIN Act, and could likely be implemented more quickly than any other plan.</i></p>	<p><i>As stated in Section 1.0 of the draft report: "The deepening project, SHEP, was authorized in the WRRDA 2014. The project contained a mitigation feature to provide fish passage at the NSBLD. The fish passage feature was designed to keep the existing lock and dam in place, while building a bypass channel for fish to migrate to the Augusta Shoals, historic spawning grounds for sturgeon and important for other fish including the Georgia state listed robust redhorse. However, this original design is not consistent with the 2016 WIIN Act. Therefore, for the purposes of this analysis, the original design is considered the No Action Alternative (NAA) in the comparison of alternatives during plan formulation. The current and future conditions described in this document used as the base of comparison for the effects analysis do not include the original design, the SHEP 2012 Fish Passage."</i></p>
<p><i>The Draft Report errs in directly comparing alternatives that are not developed pursuant to the same section of the WIIN Act, because each has different purposes and therefore the criteria should be different, depending upon whether the alternative be promulgated under Option (i) or Option (ii), as described in the WIIN Act 2016 paragraph above. Thus, the Plan Selection section must be reformulated to conform correctly to the Act. The Option (i) plans should be judged by the criteria of navigation, water supply, recreation, and fish passage.</i></p>	<p><i>Navigation is the primary difference between the two alternatives. With respect to navigation, the Corps considers navigation to be whatever recreational navigation uses (in the pool and in the downstream river) were in existence as of 16 Dec 2016 (date of enactment of WRDA/WIIN 2016). Commercial navigation was not in existence on 16 Dec 2016; accordingly, alternative plans should not include repair or rehabilitation of commercial navigation features. Both alternatives contain navigational recreation as a criteria and as such, are evenly matched for comparison.</i></p>

<p><i>The Option (ii) plans should be judged by the criteria of water supply and recreation. Faithful application of these criteria that will correct the similar flawed Table 29: Final Analysis¹¹ in the Draft Report, will result in a different outcome of ratings for the different alternatives, most likely giving the No Action Alternative and Alternative 1-1 the highest ratings.</i></p>	
<p><i>The Cities of Augusta and North Augusta find that none of the alternatives maintain the pool as required by the WIIN Act. Further the Cities interpret the word “navigation” in the WIIN Act under its option (i) as navigation through the existing lock up and down the river past the rock ramp over the dam, as evidenced by the fact that the lock wall is directed to be retained and repaired under this option. This position is bolstered by the fact that the act does not authorize navigation as a purpose of the free-standing weir described in option (ii). The distinction clearly illustrates that the act does not contemplate “navigation” to apply merely to movements within the pool, as arbitrarily interpreted by the Corps, although it would also include those functions. All alternatives in the Draft Report fail to conform to the WIIN Act for navigability, except the No Action Alternative, which retains the lock, but does not repair it. Navigation within the pool itself is also impaired by all of the alternatives, including Alternative 1-1 and the No Action Alternative, which lower the pool elevations.</i></p>	<p><i>In addition to the response provided above, the lock was closed in May 2014 due to safety concerns with the stability of the lower riverside lock wall during lockages. The WIIN Act officially de-authorized the project’s use for commercial navigation in 2016. Without authorization to operate the facility for commercial navigation, Congress cannot appropriate federal funding for repairs toward the structure’s original function. In addition, funding was unavailable for nearly 20 years before the structure was de-authorized because the structure is no longer able to serve its federal purpose of commercial navigation.</i></p> <p><i>This topic is further discussed in Section 1.1 and 2.2 of the draft report.</i></p>
<p><i>The Draft Report and the Corps’ blog posts are very confusing for the reviewers and for the public to comprehend and analyze in that they use several different units, types, terminology, and descriptors for</i></p>	<p><i>Each blog post and comment is coordinated with engineering for accuracy. This is provided as an extra layer of information and informal communication with the public and stakeholders. All information in the draft report and the blog are considered draft until the report is provided as “final” to the MSC Commander.</i></p>

<p><i>level measurements in various places: feet, inches, elevations, depths, ranges, impacts, today, existing, etc. Particularly confusing is the mixing of elevation figures from two different surveying datums. The original design of the NSBLD contemplated a range of normal operating water levels between Elev. 114.5 and Elev. 115.0 (NGVD 1929), and a review of recent USGS water stage records show that the Corps has actually operated the dam at an average normal level of 115.0. Yet, inexplicably, they have used Elev. 114.0 as the existing conditions when comparing alternatives, even though the real existing conditions show Elev. 115 to be the normal pool level on a nearly every day basis. This 1.0-foot difference in the initial base line data skews all of the comparisons in the Draft Report, which must be corrected and reissued so that truthful comparisons can be made.</i></p> <p><i>Moreover, the Corps used an alleged, so-called “range” of operation of existing conditions of Elev. 112 to 115, which is far from what the Corps operations personnel are proven by gauge records to use actually day by day.</i></p>	<p><i>The purpose of the releases is to maintain regulated pool levels at J. Strom Thurmond reservoir and provide for power use and water supply. This is why a range is used and may vary based on precipitation in a given year.</i></p>
<p><i>The Draft Report gives only minimal consideration to the threat of flooding from the regulatory 100-year flood and the 500-year flood, as required by rules of the Federal Emergency Management Agency (FEMA). It fails to demonstrate that any of the alternatives will result in a “no-rise” condition, a paramount issue and potential threat to the communities, in violation of both the WIIN Act itself and of FEMA regulations. In fact, the Draft Report explicitly casts doubt over whether a “no-rise” situation is even possible.</i></p>	<p><i>As discussed extensively in Section 2 of Appendix A of the draft report, the Corps has conducted extensive modeling efforts to include use of the current effective FEMA model. This 1D model was not adequate to evaluate all flow conditions considered for the project which led to the development of the 2D model. However, the FEMA model was utilized to evaluate impacts caused by the 100-year and 500-year storm events.</i></p> <p><i>The range of flows considered in the 2D model are the drought level flow (3600 cfs), an average low flow (5000 cfs), average high flow (8000 cfs), 2-year event, 5-year event, 10-year event, 25-year event, 50-year event and 100-year event.</i></p>

<p><i>The Corps must retract and revise the Draft Report to demonstrate that the project will not cause a rise in the FEMA 100-year Floodplain, nor any change in the FEMA designated Floodway.</i></p> <p><i>In addition, the Draft Report inadequately addresses flooding from the more frequent (lower flow) floods, along with the physical, economic, and public safety threats resulting from those events, especially within residential and business areas along the river.</i></p>	<p>As stated in Appendix A, Section 2.3.15: “This alternative would not cause any increase flooding depth or inundation footprint as compared to existing conditions.”</p>
<p><i>In analyzing the workability of the City of Augusta’s raw water pumping station under the various alternatives, the Corps included only the existing conditions of water withdrawal rates at the N. Max Hicks Plant Raw Water Intake, without considering ultimate build-out capacity, which is much larger. Moreover, the February drawdown showed that the Corps’s hydraulic model did not predict the water surface elevations properly. Therefore, the City of Augusta has grave doubts about the future effectiveness of this critically important raw water pumping station, which supplies drinking water to a large part of the City’s citizens.</i></p>	<p>As stated in Section 2.2.13 in the draft report: Since the NSBLD was a single-purpose navigation project, USACE does not have any water storage agreements with the owners of these water intakes. Despite this fact, an extensive study was conducted as part of this project to determine impacts to water supply intakes within the pool. Appendix A, Section 2.4.2 summarizes the results of this effort.</p> <p>The WIIN Act only provides for maintaining water supply on the date of enactment. Providing for future increased water supply capacity is not within the scope of the change in authorization.</p>
<p><i>The Cities of Augusta and North Augusta find that impacts on recreational uses of the river are not adequately identified, evaluated, or mitigated within the Draft Report. The majority of in-river recreational uses upstream of the NSBLD were not identified or evaluated in the analysis of the presented alternatives. While an effort to evaluate some of the impact on some of the upstream docks was undertaken, this narrow focus does not include most of the current recreational uses and was based upon inaccurate modeling that grossly underestimated the degree of lowering predicted by the</i></p>	<p>The scope of the recreation analysis was based on the events taking place in the water which included, recreational boating (impacts to docks, boat ramp access, and recreational navigation) and special events (head of the south regatta and ironman). The recreational analysis only included activities that were already in place or were ongoing year to year at the date of enactment of the WIIN Act. The analysis did not include future events covered in the cities River Vision Plan.</p> <p>With regard to the park, the floodplain bench for the recommended plan would cover a portion of the existing park, while leaving a large section of it in place. The floodplain bench, when not engaged during high flows would also provide for recreational opportunities. The loss of a portion of the park is necessary to provide sufficient conveyance to pass high flows without inducing flood damages upstream.</p>

<p><i>Corps’s hydraulic modeling. Recreational considerations in the Corps’s evaluation of the alternatives appear to have only included physical impacts to a select group of docks resulting from reductions in water surface elevations, with no consideration of the cost consequences. However, other recreational uses and considerations including but not limited to those outlined below are significant and do not appear to have been adequately considered in the evaluation of the alternatives and (presumably) their formulation.</i></p> <p><i>The Cities request that a much more complete inclusion of recreational uses and related economic impacts analysis be undertaken and used in the development and evaluation of alternatives. The City of Augusta requests that river corridor planning efforts as outlined in the River Vision Plan be addressed in the development and evaluation of alternatives. This includes the development, refinement, and evaluation of alternatives to the US Army Corps of Engineers’ (Corps) design for the New Savannah Bluff Lock and Dam (NSBLD), fish passage, and adjacent NSBLD Park. The City requests that the NSBLD Park be maintained in area and elevation to keep it as a valued community amenity and maintain its rich history. Maintaining this park as such, strictly prohibits the proposed “floodplain bench” included in many of the presented alternatives including the Recommended Plan.</i></p>	
<p><i>Planning, design, and alternative evaluation should include issues such as: level of activity around the water’s edge both for current conditions and anticipated future users; frequency and range of flows within the recreational river; and potential consequences of</i></p>	<p><i>The Corps uses a risk management approach to developing studies. No other information has been found or provided via public comment about recreational uses that may be impacted by the project. Accidentally falling into the water would be similar to current conditions.</i></p>

<p><i>accidentally falling into the water (low water and high-water conditions) and consequences of inadvertent navigation or entrainment in the rock ramp fish passage.</i></p>	
<p><i>As stated on page 49 of the Draft Report, flows used to evaluate project impacts (except to public water supplies) was 5,000 cfs. The “normal conditions” flow rate used in the descriptions of the presented Alternatives was 5,000 cfs. It is not exactly clear why this was chosen as no clear reasoning is given. As stated in the Draft Report and indicated on the figure below, flows that occur between 5,000 cfs and 3,600 cfs occur a noteworthy part of the time. Figure 7 of Appendix A of the Draft Report shows that flow in this range occurs about 25% of the time. Flows in this range occur more frequently during the several months in the summer, when recreational use is highest. Recreational uses, impacts on docks, etc. outlined herein occur a significant time during this flow range, and it is not justified to ignore them in the development, analysis, and selection of alternatives. Flows occurring in the range of 3,600 and 5,000 cfs should be included and evaluated in the development, presentation, evaluation, and selection of all alternatives.</i></p>	<p>The Corps considered a wide range of flows when evaluating project alternatives, from extreme drought conditions to floods. 5,000cfs represents the low end of average flows, as seen in Figure 7 of Appendix A to the main report. The vast majority of the time flow levels are above 5,000cfs.</p>
<p><i>As further detailed elsewhere, the estimation on the decreases in depths presented by the Corps are inaccurate and insufficient. As decreased depths are more frequent and perhaps rapid fluctuations in depth negatively impact identified issues and recreational activities, the impacts have not been adequately determined.</i></p>	<p>Table 8 in Appendix A of the draft report provides the water surface elevations predicted by the model. The model was developed using the best available information. When that information was not adequate the Corps collected additional datasets to utilize in model development. The model has been reviewed and validated through the Corps review process with hydraulic engineering expertise both within and outside of the Corps. It is for these reasons that we believe the model is both accurate and sufficient for use in this project analysis.</p>
<p><i>Most of the analysis and results as provided on all but the first page of Appendix G are not accurate nor</i></p>	<p>The Corps uses a range from 112.5 to 115 as the current condition with 114 NGVD 29 being the average existing condition. The docks were analyzed using the HEC-RAZ model and show an impact if less than 2 ft of water</p>

<p><i>representative of the impacts that would result with implementation of any of the proposed alternatives. Moreover, the analyses consider the No Action Alternative as the base line condition; when, in fact, the existing water levels are higher. Consideration of the impact for adjacent land owners to install new docks was not made, nor were the costs for these significant changes accounted for.</i></p>	<p><i>under the dock. This analysis did not consider docks that were already shallow with less than 2 feet of water prior to the date of enactment. The Corps has not received any permit applications which are needed to construct new docks within the federal project so consideration of new docks is not relevant and such new docks could be extended prior to construction.</i></p>
<p><i>The Corps’s Draft Report states that: “The Savannah River Basin Water Control Manual would be updated to increase flows from J. Strom Thurmond to meet water surface elevations required for the special events except when in drought contingency operations and flood conditions. As a result, the Ironman 70.3 and Head of the South Regatta would not be adversely impacted by any of the alternatives outside of periods of drought and flood.” However, the different alternatives would require greatly differing releases in flow and these releases are much more (due to the hydraulic modeling underestimation of water surface elevation) than would have been anticipated. Consideration of these issues would impact related costs and increase the probability that the events could not be held due to insufficient water supply. Furthermore, determination of the release rates, costs for these releases, and prediction of the frequency when these events could not be held were not provided in the Draft Report. Also, this operation could increase the flow rate which would increase the overall downstream velocities, and change the velocities across the event cross-section, changing the watercourse from lake-like to riverine. This would negatively impact all races or timed events.</i></p>	<p><i>The Corps currently performs a “temporary deviation” to increase releases for these events to increase the water levels in the pool. Temporary deviations are approved by the Savannah District Commander and are dependent on the regulated pool schedule and levels in the upstream reservoirs. The Corps has coordinated with the event managers about the needs for these events. The Corps water managers provided assurance that after the recommended plan is implemented that a temporary deviation will provide the water levels needed.</i></p> <p>From section 3.6.2 of the report states, “Normal pool elevations upstream of the dam are likely to be lower during normal flow conditions, and there will be more variability in the pool elevation due to the construction of a fish passage structure. It is important to note that any changes to NSBLD or construction of any fish-passage structure will not impact the flow levels at Augusta or releases from Thurmond Dam.”</p>

<p><i>For example, it would give an advantage here and a disadvantage there, depending upon which “lane” a competitor might be assigned to.</i></p> <p><i>The predicted increase in downstream velocities were not provided and could increase a variety of safety issues.</i></p>	
<p><i>Patriot Boat Tours operates a larger pontoon boat. There may not end up being enough depth at the main tour boat dock at Tenth Street to accommodate tour vessels. There may be additional commercial or private operations of larger boats that would draw more water or otherwise be reliant upon a deeper pool. These were not identified in the Draft Report.</i></p>	<p><i>The dock ramps may need to be extended. The bathymetric surveys and the HEC-RAS modeling may be able provide some information for these boaters. We have shared the model files with the City of Augusta so you may review it yourself to determine the capability of these larger vessels.</i></p>
<p><i>Alternatives that include excavation of the Park for the “floodplain bench” or overflow channel including the recommended 2-6d alternative have a significant negative impact on the NSBLD Park. These alternatives would effectively render the park useless or nearly useless and it would become a maintenance liability. This park has a historically significant history and is utilized by many residents. These impacts were not considered as part of the Draft Report, including Appendix G - Recreation.</i></p> <p><i>Inclusion of these negative impacts must be considered in the development, evaluation, and selection of the alternatives.</i></p>	<p><i>The floodplain bench for the recommended plan would cover a portion of the existing park, while leaving a large section of it in place. The floodplain bench, when not engaged during high flows would also provide for recreational opportunities. The loss of a portion of the park is necessary to provide sufficient conveyance to pass high flows without inducing flood damages upstream. The floodplain bench can be used for recreational activities because except for high flow events, the grass covered bench will be dry.</i></p>
<p><i>Appropriate consideration and inclusion of all recreational uses and their economic impact would influence the development, evaluation, and selection of the alternatives. These efforts should be based upon accurate predictions in water surface elevations and evaluation of the frequency of the variations in the water surface elevations.</i></p>	<p><i>Table 8 in Appendix A of the draft report provides the water surface elevations predicted by the model. The model was developed using the best available information. When that information was not adequate the Corps collected additional datasets to utilize in model development. The model has been reviewed and validated through the Corps review process with hydraulic engineering expertise both within and outside of the Corps. It is for these reasons that we believe the model is both accurate and sufficient for use in this project analysis.</i></p>

<p><i>Development, analysis, evaluation and selection of alternatives should include and support this planning effort and the economic and quality of life impacts it will provide. Alternatives at the NSBLD need to address pool elevations, safety, and the intended uses and development of the NSBLD Park, trails, and recreational uses. Only Alternative 1-1 currently comes close to integrating with the objectives and requirements reflected in this planning document.</i></p>	<p><i>Thank you for your comment.</i></p>
<p><i>Fishing is a critical component of everyday life for Augustans that live near the New Savannah Bluff Lock and Dam Park. People fish at the landside of the lock, using the ready access to and amenities in the Park. Keeping the Park available to the public, along with safe access for fishing should be considered and weigh heavily in the evaluation of recreational uses. Fishing however does not appear to be included in the development or evaluation of the presented alternatives. An alternative that keeps the Park available to the public, along with safe access for fishing is essential. Alternatives that remove or diminish the Park are unacceptable.</i></p>	<p><i>The Park will not be diminished in that the parking lot will be removed for the flood plain bench which will be an area that can be used by the park most of the time. A new parking lot and boat ramp will be constructed as a result of building the flood plain bench. Fishermen will not lose access to the river as a result of the recommended plan.</i></p>
<p><i>Low-hazard passage of recreational whitewater craft through or around the rock ramp or existing lock and dam should be considered in the development, refinement, and evaluation of the alternatives. Passage of boats around the NSBLD has historically been provided by the lock. This is evidenced in a 2014 article written by the CORPS, where it was noted that the city operated the lock a few dozen times a year for recreational boating. Although the whitewater passage is of a different type, it would mitigate the economic and</i></p>	<p><i>The lock has not been in operation since 2014, largely due to safety concerns for the lock operator. After the fish passage is constructed, the use of some watercraft in and around the fish passage may be permitted. Consideration of any safety concerns will be communicated to the public.</i></p>

<p><i>recreational loss associated in all the presented alternatives with the elimination of the lock.</i></p>	
<p><i>The Draft Report does not identify temporary structures needed to implement any of the alternatives, nor does it outline a plan for the construction sequencing, dewatering and water level maintenance or control. These efforts have significant cost and physical effects, and additional analyses are needed to develop, analyze, cost, evaluate and select a recommended plan.</i></p>	<p>As stated in Appendix A, Section 12: A summary of the Project Costs for each alternative in the final array are presented in Table 12. For more detailed cost figures and discussion regarding development of project costs see the Cost Appendix.</p> <p>The Cost Appendix, Appendix B includes a brief description of the features of work and the associated costs. This analysis is in compliance with current USACE regulations and manuals regarding the development of cost estimates. The costs are extensively reviewed for accuracy and completeness and are then approved by the USACE Center of Expertise for Cost Estimates in Walla Walla District.</p>
<p><i>The Cities and County are concerned about the effects of the project on the real estate that fronts on and lies near the seventeen-mile-long Lock and Dam pool. There are upward of 446 individual privately-owned parcels of land fronting on the pool, to say nothing of the nearby parcels benefitting from proximity to and views of the water. The diminished value of the waterfront properties and the hindrance effect on ongoing and planned redevelopment projects caused by the lowering of the pool must be considered a cost of the project and compensation, paid. The Draft Report ignores these effects and is thus deficient. It must be withdrawn, corrected, and reissued for public comment. The Corps arbitrarily omitted considering all alternatives by omitting any fish passage or construction on the South Carolina side, choosing instead to obliterate a functioning park to avoid purchasing a few acres of land.</i></p>	<p>The changes in appearance of the shoreline of properties along the pool are not yet known. The simulation event occurred after a period of higher water levels and high flows during the winter. The appearance along these properties may change when the actual project is constructed.</p> <p>The floodplain bench for the recommended plan would cover a portion of the existing park, while leaving a large section of it in place. The loss of a portion of the park is necessary to provide sufficient conveyance to pass high flows without inducing flood damages upstream. The Corps is also concerned about the effects of the project on real estate that fronts on and lies near the pool. The Corps evaluated impacts to the properties under each alternative. Alternative 2-6d provides for a pool without causing flooding to adjacent properties.</p> <p>The Corps will use the NSBLD property to stage construction activities because it is more efficient use of time and money since the land is federal property.</p> <p>As stated in Section 1.0 of the draft report: “The deepening project, SHEP, was authorized in the WRRDA 2014. The project contained a mitigation feature to provide fish passage at the NSBLD. The fish passage feature was designed to keep the existing lock and dam in place, while building a bypass channel for fish to migrate to the Augusta Shoals, historic spawning grounds for sturgeon and important for other fish including the Georgia state listed robust redhorse. However, this original design is not consistent with the 2016 WIIN Act. Therefore, for the purposes of this</p>

	<p>analysis, the original design is considered the No Action Alternative (NAA) in the comparison of alternatives during plan formulation. The current and future conditions described in this document used as the base of comparison for the effects analysis do not include the original design, the SHEP 2012 Fish Passage.”</p>
<p><i>The Corps fails to address the long-term sedimentation of the pool over the life of the project, which will ultimately, cause multiple problems upstream, silting-in and impairing the operation of water intakes, reducing flow cross-sections, raising flood levels, and other negative effects. The Corps must consider the beneficial effects of choosing an alternative that does not create upstream silt deltas, such as Alternative 1-1. The Draft Report also fails to consider adequately the movement of existing silt masses downstream and the accompanying exposure of various types of deleterious materials. The Draft Report lacks consideration of the issue of dealing with legacy toxic sediments that will likely be disturbed by exposure along and within the pool and during the construction on the site. The Corps must address the presence or absence of legacy toxic chemical composition and potential fate and transport of those sediments and must provide a plan to facilitate sediment stabilization of newly exposed sediment sources.</i></p>	<p><i>Sedimentation is discussed in Attachment 3 to Appendix A of the draft report.</i></p> <p><i>If concerns develop regarding unexpected sedimentation after construction the Corps is authorized to utilize adaptive management to provide a corrective action. Appendix D of the SHEP 2012 FEIS provides the details on the monitoring and adaptive management (AM) plan for the fish passage.</i></p>
<p><i>If the primary goal of the NSBLD alteration is to allow passage of shortnose and Atlantic sturgeons beyond NSBLD, then no matter the design alternative chosen, Corps, NOAA-NMFAS, and GPA should take an adaptive management approach and ensure successful passage and spawning behavior of these fish. Sufficient funds should be allocated for monitoring fish migration</i></p>	<p><i>Appendix D of the SHEP 2012 FEIS provides the details on the monitoring and adaptive management (AM) plan for the fish passage.</i></p>

<p><i>patterns to either reach remaining shoals above NSBLD or spawn at any remaining gravel bars that may exist after construction below the dam and sufficient contingency funds should be set aside to make appropriate alterations to the chosen alternative until successful spawning behavior has been proven with reliable, peer reviewed data at either remaining gravel bars or within the shoals.</i></p>	
<p><i>Since dissolved oxygen is so critical, there should be peer reviewed documentation from other rock ramp projects around the country that show dissolved oxygen dynamics will not be impacted by the chosen alternative. Furthermore, that documentation should be in the form of measured data from those projects and not modeled results since this impact is so critical to restoring the river and could impact the viability of each municipal and industrial discharger below Thurmond Dam.</i></p>	<p>Please reference section 3.6.3 Aquatic Resources and Aquatic Habitat for information on how the dissolved oxygen would change with each alternative action. Generally, the report states that dissolved oxygen will improve.</p>
<p><i>What is the fate of the scour hole below the dam for the preferred alternatives?</i></p>	<p>This topic is discussed in Section 4.1 of the draft report. The resulting concrete rubble from the demolished dam is assumed to be hauled off and disposed of at a landfill facility for cost purposes, but could potentially be placed in the scour hole, which would result in an overall construction cost savings to the project.</p>
<p><i>Since groundwater and surface water flows to the river, changing pool elevation will have an impact on the regional surficial groundwater table by decreasing piezometric head and lower water levels in the watershed that drains to that pool elevation. This impact could have a positive effect in some areas of Augusta and North Augusta that have had historic flooding issues because the Lock and Dam artificially held the piezometric head higher than when the dam was not in place, but could have significant impacts in areas where groundwater drawdown weakens under portions of each</i></p>	<p>Most of the impacts to pool elevation will be experienced at the NSBLD and pool elevation changes are expected to have a minimal effect on the groundwater as a result of the project.</p>

<p><i>city that are supporting significant infrastructure. This again, shows that the series of dams in the Savannah River are the “new normal” for the river and changes that effect widescale systems, such as the regional groundwater system, could have significant economic impacts if not appropriately studied and accounted for. How will this potential impact be addressed if the pool elevation is proposed to be lowered from current normal levels?</i></p>	
<p><i>The Corps must clarify how NOAA-NMFS justified mitigation of access to spawning habitat above NSBLD in lieu of destruction of nursery/summer habitat in the estuary. The Cities would like to understand the NOAA-NMFS justification and should include providing the peer-reviewed statistical cost/benefit analyses to justify this conclusion as well as any peer-reviewed publications that support this justification. This justification should be weighed relative to some of the world’s renowned experts on shortnose sturgeon (including a NMFS expert; Kynard et al., 2016) suggesting that even if river rapids exist (believed by many fisheries experts to be the favored spawning conditions for shortnose sturgeon), this does not mean that they will seek those areas if individual fish imprint at a different reach during the early life stages.</i></p>	<p><i>The rationale for choosing a fish passage at NSBLD is covered in Appendix C of the SHEP 2012 EIS that this EA supplements. USACE held an interagency workshop, which was attended by NOAA Fisheries, USFWS, SC DNR, GA DNR, UGA, TNC and USACE. The group reviewed the project’s expected impacts to SNS, and evaluated the effectiveness of the mitigation options available. The natural resource agencies preferred removal of the Lock & Dam, followed in priority by a Full River Rock Ramp. Using a recently approved design for SNS passage on the Cape Fear River in NC, the attendees agreed on general design criteria for a successful rock ramp passage structure. USACE then used those criteria to develop and evaluate several alternate designs.</i></p>
<p><i>Identification, mitigation, and evaluation of potentially impacted wetlands and the differing impacts to these by the various alternatives were not presented in the Draft Report including the Draft Finding of No Significant Impact. Therefore, the development and evaluation of the proposed alternatives in the Draft Report are inadequate. Draft Report & Appendix C –</i></p>	<p><i>The report has been updated to better discuss impacts to wetlands. The majority of the wetlands immediate adjacent to the river between the NSBLD leading up to the Augusta shoals as through the city of Augusta is Freshwater Forested/Shrub Wetland and are classified as being temporary flooded: Surface water is present for brief periods (from a few days to a few weeks) during the growing season, but the water table usually lies well below the ground surface for the most of the season. With implementation of the recommended plan (alternative 2-6d), or any of the alternatives being evaluated, it is expected that the wetlands immediate adjacent to the river between the NSBLD leading up to the Augusta shoals</i></p>

<p><i>Environmental Resources: Wetlands not investigated in the footprint of any of the alternatives.</i></p>	<p><i>as through the city of Augusta would continue to be temporarily flooded as it occurs during existing conditions. While it is expected that water levels may vary slightly from the existing conditions as result of the creation of the fish passage structure, the overall composition of the wetlands will not change and therefore the plant and animal communities should not be impacted. The wetlands that are present will continue to be wetland that will be temporarily flooded for brief periods (from a few days to a few weeks) during the growing season. It would just depend on how much water would be within the wetland that might change slightly. The water levels may also change slightly based on whether or not we are in the lower average flow events or in the higher average flow events. During the higher average flow events, it is expected that the water levels within the wetlands should remain relatively consistent to existing conditions. During the lower average flow events (such as during drought conditions), it is expected that the water levels will lower slightly from existing conditions but it should not change the composition of the wetlands because they are already only flooded temporarily, and only for days/weeks at a time.</i></p> <p><i>The wetlands near the Augusta shoals are also temporarily flooded but have a slightly different classification. These wetlands have surface water that is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface. The water levels in this portion of the river are not expected to change as result of the recommended plan (alterative 2-6d) or from any of the other alternatives being evaluated from what is seen as part of the existing conditions. As a result, the composition of these wetlands will not be altered and will not impact the plant and animal communities.</i></p>
<p><i>The Corps should consider the added benefit of power generation as a potential offset against future maintenance costs of the applicable alternatives, including Alternative 1-1.</i></p>	<p>Hydropower is not an authorized purpose of New Savannah Bluff Lock & Dam, nor are facilities currently in place to accommodate power generation. Repurposing the dam is beyond the scope of the Fish Passage project.</p>
<p><i>The Draft Report contains meager, erroneous, and incomplete information on the Corps's plans to comply with the applicable requirements of the National Historic Preservation Act. While the Corps states that</i></p>	<p><i>Please reference section 3.6.9 Cultural Resources. This section of the report is specifically addressing the impact of the alternatives on the NSBLD and the park property and the training wall.</i></p>

<p><i>they will conduct archaeological investigations according to the 2012 SHEP Programmatic Agreement, that agreement and its attachments make no mention of the New Savannah Bluff site nor the NSBLD. The Area of Potential Effect in the Draft Report is erroneous and needs to be corrected to include all of the areas impacted by the proposed alternatives, including at least all of the federally owned lands currently leased to Augusta, Georgia. I</i></p>	
<p><i>The Cities of Augusta and North Augusta request that the Corps reinstate and select a corrected and modified Alternative 1-1, because it is the only plan that comes close to maintaining the pool, as required by the WIIN Act 2016. But even Alternative 1-1 illegally lowers the pool, as it does not comply with the WIIN Act and because it was formulated using the erroneous HEC-RAS computer model that was disproven by the February 15, 2019 drawdown.</i></p>	<p>Please reference section 3.6.2 which addresses the fact that any alteration of the NSBLD are likely to have an impact on water surface elevations with the pool of the Savannah River upstream of the existing lock and dam. Please reference the engineering appendix attachment 4 for a discussion of the simulation event.</p> <p>Alternatives 2-6a is a full width fish passage with similar elevations to Alternative 1-1.</p>
<p><i>The cost figures presented by the Corps for this and other alternatives have varied greatly at each stage of this project and were even changed by an order of magnitude during the middle of the current public comment period. The underlying bases of these costs have not been shared with the public, and are so unreliable and unsubstantiated that no rational conclusions can be drawn by the Cities nor the public at large. The Corps has used their latest highly escalated cost projections and a question about the fish passage efficiency to throw out the most reasonable of the plans proffered in the Draft Report. This decision is arbitrary and should be reversed.</i></p>	<p>The cost estimates in the project have been widely shared with the public during public engagements, public presentation materials posted to the sas.usace.army.mil website, and updated in the blog, <i>Balancing the Basin</i>.</p> <p>The Post Authorization Analysis Report Section 4.3 contains a description of each alternative with the construction cost and annualized operation and maintenance and major rehabilitation.</p> <p>The cost appendix includes a detailed analysis of the recommended plan, alternative 2-6d that has been certified by our cost center of expertise. The increased cost of 2-6d is based on refinement of the construction methodology. The construction will occur over two years and will use a bifurcated coffer dam to construct the rock weir so as to maintain water levels for water supply.</p> <p>The total cost of the project was presented to the public in blog post. It included the investment cost which includes the cost of construction, real estate, and labor for planning, design, and supervision and administration</p>

<p><i>The costs assume a complete rebuild of the Lock and Dam at Year 50 at a cost of \$93.7 million, and a huge amount of Operation and Maintenance costs besides. Engineering economic analyses do and should consider proper maintenance costs to operate the facility over the time of the planning horizon. The very large and highly suspect O&M costs should obviate the need for a complete rehabilitation at that time.</i></p> <p><i>It is totally unclear what the basis of those exorbitant O&M costs are. Moreover, the Corps will certainly not be actually placing funds into a sinking fund to pay for the rebuild. The Corps should present supporting documentation of the newly escalated cost figures, so that the Cities and stakeholders may reach conclusions on their validity.</i></p>	<p><i>of construction activities. Investment cost does not include operation and maintenance or rehabilitation. The blog post also described the cost estimate for major rehabilitation was \$93 million represented present year dollars for rehabilitation sometime in the next 50 years. This value includes the cost for rehabilitation, plus contingency, plus the changes in the percent escalation of dollars over this time period. Lastly, the blog post described the O&M also represented in present value projected over the next 100 years and assumes a standard wage rate for performing the O&M work.</i></p> <p><i>https://balancingthebasin.armylive.dodlive.mil/2019/03/18/how-two-fish-passage-alternatives-compare/</i></p>
<p><i>The Corps's Implementation Guidance states that if any alternative is chosen under (i) of the WIIN Act, the federal share of operation and maintenance costs is 100%, and if any alternative is chosen under (ii), the O&M costs are to be split according to the purposes of those costs. Therefore, the O&M costs for Alternative 1-1 should be 100% federal. But, the escalated cost chart in their blog post of 2019/03/18 shows a split federal/non-federal cost for Alternative 1-1, the same basis as presented for 2-6d. In reality all of the O&M costs for 1-1 should be corrected to be a federal expense. Is this a hidden reason for the Corps to eliminate Alternative 1-1 late in the public comment period? Moreover, the Corps's cost estimates overall are arbitrary and unsupported, contradicting previously published figures by such wide margins as to bring into question their veracity for use in rational decision making.</i></p>	<p><i>Since the Corps did not select alternative 1-1 as the recommended plan, the cost share is described as if an LPP could have been provided.</i></p> <p><i>The Corps process allows for a locally preferred plan (LPP) to be presented by the Non Federal sponsor as described in Engineering Regulation, ER 1105-2-100, Planning Guidance Notebook (PGN). With an LPP, the Corps may select a higher weir if the benefits of that alternative were the same and the Non Federal sponsor agrees to provide the additional resources needed to implement this alternative.</i></p> <p><i>Since alternative 1-1 does not meet the same benefits as 2-6d for passing fish, it cannot be considered as an LPP.</i></p>

<p><i>The Cities of Augusta and North Augusta object to the selection of Alternative 2-6d, because that plan violates the authorizing legislation in that it does not maintain the pool for water supply and recreation as required by the WIIN Act 2016, and does irreparable and permanent damage to the communities, their industries, businesses, citizens, and visitors.</i></p>	<p>The USACE Savannah District's focus is to follow the legislation requirements of the 2016 Water Infrastructure Improvements for the Nation Act as well as meet the mitigation requirements of the Savannah Harbor Expansion project while preserving the functionality of the upstream pool of the New Savannah Bluff Lock and Dam for the purposes of recreational navigation and water supply. The USACE Savannah District must work with the state and federal resource agencies to recommend a plan with the highest probability to get fish species, in particular the shortnose and Atlantic sturgeon above the lock and dam to meet our mitigation requirements of the Savannah Harbor Expansion project and comply with the endangered species act by selecting the alterative with best chance to get sturgeon past the lock and dam to additional spawning habitat.</p>
<p><i>The Corps's cost estimates are arbitrary and unsupported, contradicting previously published figures by such wide margins as to bring into question their veracity for use in rational decision making.</i></p>	<p>Updated costs are include in section 3.7, plan selection.</p>