



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
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DEC 12 2016

OFFICE OF
THE REGIONAL ADMINISTRATOR

Colonel Douglas B. Guttormsen
U.S. Army Corps of Engineers
Kansas City Regulatory Office
Kansas City District
601 East 12 Street
Room 402
Kansas City, Missouri 64106-2896

Dear Colonel Guttormsen:

The U.S. Environmental Protection Agency reviewed the U.S. Army Corps of Engineers' Draft Environmental Impact Statement pursuant to our authorities under the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), Section 309 of the Clean Air Act, and Section 404 of the Clean Water Act. The statement was assigned the Council on Environmental Quality number 20160253. A summary of our comments are discussed below, and detailed comments and a copy of the EPA's rating descriptions are included as an enclosure to this letter.

The Corps received applications from five companies for five permits under Section 10 of the Rivers and Harbors Act of 1899 for proposed commercial sand and gravel dredging on the Kansas River between river miles 9.4 and 91.0 in eight individual dredging areas. The Corps evaluated the environmental impacts of three alternatives within this draft environmental impact statement. The statement identifies a "no action" alternative, defined as the denial of all five permit applications. The proposed action is for the potential extraction of 3.15 million tons per year of sand and gravel. A second action alternative is for the extraction of 1.67 million tons per year of sand and gravel. Both action alternatives specify an amount of sand and gravel extraction annually, are further regulated by provisions in the Corps' revised 1991 Regulatory Plan, and are not as timely and effective as might be necessary to address the potential impacts on the environment.

The Corps does not identify a preferred alternative within its draft environmental impact statement, necessitating a rating from the EPA specific to each alternative. Although the immediate federal action being considered by the Corps is whether to issue these five permits under the Rivers and Harbors Act of 1899 for commercial sand and gravel dredging totaling 1.9 million tons annually, it is our understanding that the Corps intends to use this environmental impact statement for programmatic National Environmental Policy Act compliance coverage for these and any future permit awards totaling 3.15 million tons of dredged material annually. For purposes of its Clean Air Act, Section 309, review and comments, the EPA will consider the Corps' proposed alternative as being the eventual issuance of any and all permits allowing the extraction of up to 3.15 million tons of sand and gravel.



The proposed alternative includes the extraction of up to 3.15 million tons per year of sand and gravel. The EPA has rated this alternative **EO-2**, environmental objections/insufficient information. The environmental objections rating for the proposed alternative is based on the potential for a greater than 200% increase in dredging over the annual amounts actually extracted from 2007 to 2015 under the existing permits. Dredging at these levels may not be sustainable, and in the context of historical dredging levels and past bed loss documented by the Corps, could lead to significant biological and ecological impacts.

The second alternative is a “reduced dredging limits” alternative consisting of the extraction of 1.67 million tons per year of sand and gravel. The EPA has rated this alternative **EC-2**, environmental concerns/insufficient information, as it represents extraction over 60% greater than what was extracted from 2007 to 2015 under existing permits. The final alternative is a “no action” alternative with no permits approval. The EPA has rated this alternative as **LO-2**, lack of objections/insufficient information, based on the absence of further dredging contributions to continuing bed loss, damage to infrastructure, and the potential for resulting impacts on the environment.

The draft environmental impact statement does not clearly characterize the Corps’ intended use of this National Environmental Policy Act document as a programmatic environmental impact statement to provide compliance coverage for the future permitting of dredging up to a total extraction of 3.15 million tons. The statement also lacks a robust range of reasonable alternatives; specifically lacking an alternative that represents a status quo condition for sand and gravel extraction. The EPA believes that the public may not understand the potential environmental and economic consequences of the proposed project as they are currently portrayed in the draft environmental impact statement, and that a final decision cannot be supported without supplemental information and discussion within a revised or supplemental draft environmental impact statement related to the concerns outlined above.

The EPA is also separately providing recommendations to the Corps under the Memorandum of Agreement governing coordination between our agencies under Section 404(q) of the Clean Water Act regarding the issuance of these permits under Section 10 of the Rivers and Harbors Act of 1899 (33 USC §403).

If you have any questions regarding these comments, please contact Mr. Josh Tapp, Deputy Director, Environmental Sciences and Technology Division at (913) 551-7606 or tapp.joshua@epa.gov.

Sincerely,



Mark Hague

Enclosures

cc: Mark Frazier, Army Corps of Engineers
David Hibbs, Army Corps of Engineers
Brian Donahue, Army Corps of Engineers

Detailed Comments on the Draft Environmental Impact Statement Council on Environmental Quality #20160253

General Comments

Although the current applicants have requested authorization to dredge a total of 1.9 million tons of material annually, the U.S. Army Corps of Engineers' Regulatory Plan allows for up to 3.15 million tons per year of material to be removed from the river by any current and future permit applicants. The Corps utilizes both a maximum permitted amount and its Regulatory Plan to regulate the extraction of sand and gravel from the Kansas River. This dual regulatory approach, creating two dredging scenarios, within the 'proposed alternative' identified by the Corps is unclearly described in the document, and could affect the public's understanding of the scope and impact of this federal action.

In addition, the National Environmental Policy Act analysis is limited by a narrow range of alternatives and inadequate treatment of the second action alternative. The Council on Environmental Quality regulations at 40 CFR 1502.14 underscore the importance of analyzing the impacts of the proposal and alternatives in comparative form to support establishing a clear choice among options by the decisionmaker and the public. The rigor of the alternatives analysis is a direct function of the range of alternatives and the "substantial treatment" of each alternative required by the Council on Environmental Quality in that analysis.

The draft environmental impact statement does not provide a comprehensive assessment of economic impacts to the regional economy. Although recognizing that commercial dredging affects the safety and nature of recreational use of the river, the statement does not include an analysis of the economic benefits accruing from the recreational use of the river against which to compare the economic benefits of dredging.

Treatment of the Draft Environmental Impact Statement as a Programmatic National Environmental Policy Act Compliance Document

Although the immediate federal action being considered by the Corps is whether to issue the five permits applied for under the Rivers and Harbors Act for commercial sand and gravel dredging totaling 1.9 million tons annually, it is our understanding, based on previous discussions, that the Corps intends to use the proposed alternative within this draft environmental impact statement for programmatic National Environmental Policy Act compliance coverage for these and any future permit awards totaling 3.15 million tons of dredged material annually.

RECOMMENDATION: We recommend that the Corps more clearly describe the relationship between the dredgers' applied-for dredging amounts and the Corps' proposed action amount, and more thoroughly characterize the intent to use this statement as a programmatic approach to permitting dredging activities totaling up to 3.15 million tons annually. If it is the Corp's intent for this environmental impact statement to serve as a programmatic approach to evaluating the effects of this maximum threshold for potential dredging activities under the Rivers and Harbors Act Section 10 or Clean Water Act Section 404 permits, the Corps should provide additional explanation of how they will meet their National Environmental Policy Act compliance responsibilities should any application be received during the permit period supplemental to the 1.9 million tons under current application. The statement should discuss under what conditions or criteria supplemental and/or tiered National Environmental Policy Act compliance documentation would be required. Additionally, the temporal

scope of intended use for National Environmental Policy Act compliance under this programmatic National Environmental Policy Act compliance documentation should be identified.

Project Purpose and Need

We agree with the purpose statement for this federal action which is to “supply sand and gravel required to support the region’s construction and manufacturing needs.” This material could be extracted from the river, from floodplain sand deposits, from land-based sand deposits and as crushed limestone from quarries, also known as “manufactured sand.” Clearly, there are practicable alternative sources for sand and gravel other than the river and, therefore, sand and gravel extraction is not a water dependent action. We would caution that the dredgers’ purpose is not the project’s purpose. The dredgers’ purpose is based on “a competitive requirement to produce a unique, high quality product at the lowest possible cost, in order to compete with other product sources” to meet market demand for this material. The project purpose is to address the market’s need for sand and gravel while avoiding and minimizing impacts on the environment. The draft environmental impact statement, particularly by its alternatives and economic analysis, does not appear to make this distinction.

Range of Alternatives

The draft environmental impact statement identifies a “no action” alternative, defined as the denial of all five permit applications. The proposed action is for the potential extraction of 3.15 million tons per year, the maximum amount of extraction allowed under the existing regulatory plan. This amount is significantly higher than the 1.9 million tons per year applied for by the dredgers. The second action alternative, reduced limits, would allow for a maximum of 1.67 million tons per year of sand and gravel extraction based roughly on an approximation of the annual sand load of the river. The Corps does not identify a preferred alternative within its draft environmental impact statement, so the EPA has provided a rating specific to each alternative.

The draft environmental impact statement is unclear regarding the scope and nature of the proposed alternative, referring to both the “applied for” quantity of 1.9 million tons and the regulatory limit of 3.15 million tons as the “proposed” alternative. The difference in these quantities is extreme, and the comparative potential impacts to the river system are significant. Table 4 characterizes the quantities of material requested for extraction by the applicants within each of the four reaches used within the regulatory plan. Table 4 also includes the maximum amounts of material available under the regulatory plan for each of these four reaches. In discussions with the Corps, it was clarified that, although applications had requested only 1.9 million tons of material in their applications, the Corps could entertain other applications for more material in the future up to a maximum of 3.15 million tons allowed under the regulatory plan. The Corps staff explained that this National Environmental Policy Act compliance document would be relied upon should other applicants apply in the future for permits to dredge. As this document would be used for National Environmental Policy Act compliance for future permitting changes or additional permits, the EPA considers the higher value to constitute the ‘proposed action.’ The draft environmental impact statement does not clearly identify the proposed action as the regulatory plan maximum extraction limit of 3.15 million tons. The document does refer to the “applied for” amount. However, it does not adequately clarify that the ‘proposed alternative’ is not based on what has been applied, but what might be requested in the future beyond these applications up to a maximum amount possible under the existing regulatory plan. Given the large difference in quantities and the likely difference in expected impacts from these two amounts, the Corps should clarify the nature of

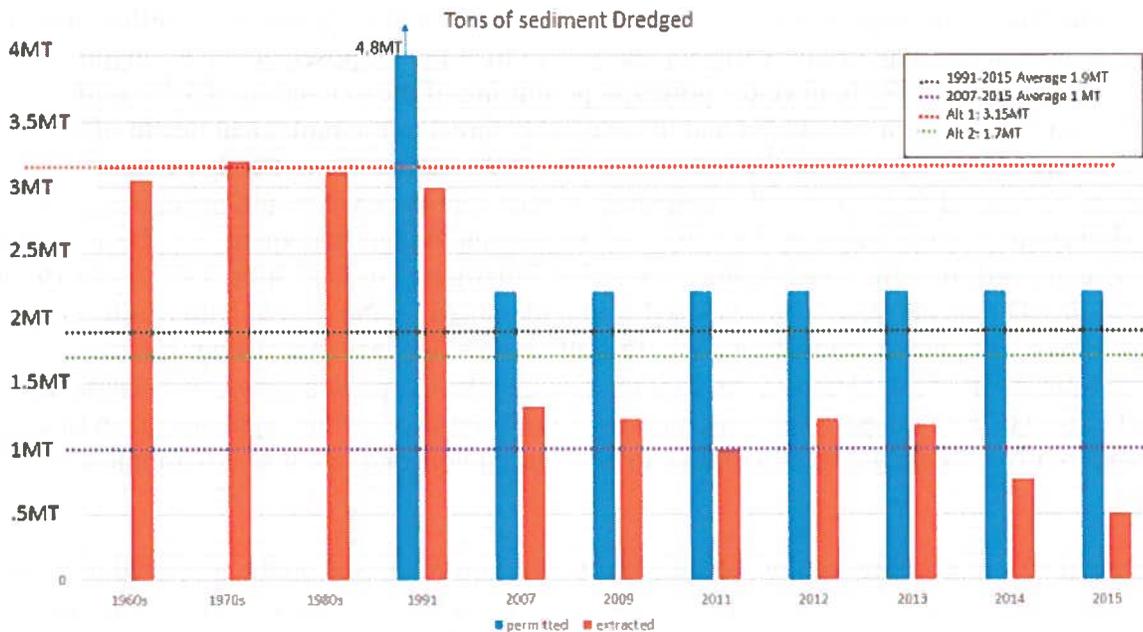
what it has labeled as the “proposed alternative.” This is a critical component of the overall National Environmental Policy Act analysis that is inadequately characterized in this draft.

The environmental objections rating for the proposed action is based on the potential for a greater than 200% increase in dredging over the annual amounts actually extracted from 2007 to 2015 under the existing permits. This amount would also constitute the greatest amount of material extracted since the 1960s. Historical bed loss has been shown by the Corps to be the result of past dredging quantities equal to the amount potentially permitted under this alternative. We do not believe the restrictions possibly implemented under the Corps’ regulatory plan to reduce permitted amounts below 3.15 million tons are certain enough or adequately supported by impact analysis to treat the proposed action as anything other than a total dredging quantity. We believe the potential permitting of the extraction of 3.15 million tons per year by the Corps would be a significant and unacceptable threat to the biological health of the river and the infrastructure placed throughout the watershed. The 1990 Kansas River Dredging Environmental Impact Statement concluded that continued unrestricted dredging in the river would result in significant and unacceptable environmental impacts. This draft environmental impact statement lists the amount of sand and gravel extracted from the river during “unrestricted dredging” in the 1960s, 1970s, and 1980s as averaging 3,124,103 tons per year. The proposed action identified by the Corps in this draft environmental impact statement would allow for 3.15 million tons per year. Permitting this amount of dredging in the Kansas River has already been characterized by the Corps as causing “unacceptable environmental impacts.” Regardless of the possible restrictions imposed by the regulatory plan that underlies this alternative, we judge this alternative to be unacceptable and rate it as environmentally objectionable.

The environmental concerns rating for the reduced limits alternative is based on the proposed dredging quantity being over 60% higher than what has been extracted from the river under current permitting. The draft environmental impact statement identifies the basis for the second action alternative as generally based on a renewable load of sand and gravel in the river system. This alternative would allow for the extraction of 1.67 million tons per year of material from the river based on an approximation of the river’s annual sand yields calculated in a 1984 report originally used in the 1990 Environmental Impact Statement. That report used flow duration and suspended sediment data collected at the U.S. Geological Survey and the Corps gauging stations. Although that approach is simple and based on data from 1935 through 1974, overlapping the period when the large reservoirs closed, it is an attempt to allow for the harvest of only the material load the river transports. We have rated this alternative as having environmental concerns because of the age of the data and its simplified approach.

In many aspects, the reduced limits alternative is not fully assessed. The draft environmental impact statement largely characterizes impacts associated with this alternative as being “somewhat less than the proposed alternative.” This alternative constitutes a more conservative permitting level than does the “proposed action” alternative, and is roughly based on an estimate of what the river transports through the system. The draft environmental impact statement frames this comparison of alternatives based only on greater and lesser dredged quantities rather than possibly as an estimate of a sustainably harvested quantity. The concept of identifying a “sustainable” amount of material harvest for comparison as part of this draft environmental impact statement is not addressed. This alternative, or one more solidly derived from current data and estimates, requires more analysis and detailed treatment than that which it receives in this draft environmental impact statement. With a range of action alternatives limited to the proposed action and a lightly treated reduced limits/mixed source alternative, a comparison of impacts supporting a decision whether to permit the full or reduced quantity of material extraction is insufficient.

The Corps' reliance on only two action alternatives is not robust, prevents a complete analysis of impacts, and is inconsistent with the Council on Environmental Quality regulations at 40 CFR 1502.14, which requires the lead agency to rigorously explore and objectively evaluate all reasonable alternatives. Specifically, we suggest that a "status quo" alternative, reflecting those quantities of sand and gravel actually extracted over the past nine years under the current Corps permits should be included, evaluated, and compared within the draft environmental impact statement.



In general, the Corps' most recent survey data suggests that bed degradation has slowed since 2007. Many of the eight geomorphological reaches identified in the Simons, Li and Associates 1984 report appear to have aggraded or at least stabilized or slowed their degradation. However, the draft environmental impact statement states that, "At individual locations, degradation and aggradation are more pronounced and sustained." We believe that the Corps' regulatory efforts require reasonable, but conservative, maximum limits to what can be dredged within each reach and the total river in conjunction with a regulatory plan that focuses on preventing bed loss in those individual locations that might threaten infrastructure. To rely completely on the regulatory plan and ignore the magnitude of the dredging quantities permitted, both individually and in total, is not prudent. In the face of incomplete information regarding the systemic impacts of dredging and what might constitute a sustainable quantity of harvest, we recommend that the Corps reduce the levels of extraction permitted to at least those which reflects current condition, and which could not be substituted for by sources off the river.

RECOMMENDATION: The Corps should revise its draft environmental impact statement to include at least one additional alternative reflecting a "status quo" quantity of dredging based on existing extraction amounts since 2007.

Affected Environment and Environmental Consequences

The Kansas River system is a sandy, prairie stream 170 miles in length with an average gradation of about 1.9 feet per mile. It's morphology and biology are defined by multiple modifications affecting hydrology, sediment transport and habitat structure. Eighteen federal reservoirs impound water on most

of the river's major tributaries, and many more dams exist on smaller tributaries in the upper portions of the watershed. In addition to trapping coarser sediment material, these reservoirs cause the river to carry a higher percentage of fine-grained material than would otherwise occur. The reservoirs have also reduced the extremes of the river's hydrograph, reducing both the frequency and magnitude of high and low flows. Sediment transport is naturally driven by high flow events. The river is also characterized by bank and channel protection structures, limiting channel movement and bank erosion. Many channel training structures, weirs and dams also strongly affect the movement of both sediment and water through the system. These river modifications provide context for the additional demands placed upon the river resource by commercial sand and gravel dredging. The draft environmental impact statement characterizes the river's morphology as stable upstream of Bowersock Dam (RM 51.8), with the exception of the Topeka area (RM 80), and less stable below the dam. The lower reaches of the river have experienced the most dredging in the past. The Missouri River creates a backwater area within the Kansas River up to approximately River Mile 9.3. The most degraded reach of the river, based on the Corps' survey data, is between River Miles 27 and 41. The most aggrading reach of the river is between River Miles 12 and 24. The draft environmental impact statement includes the Corps' survey data from 2011/12. It is not known whether more current data was available for analysis in this draft environmental impact statement.

The draft environmental impact statement asserts that any direct impacts from dredging on the river's geomorphology are limited to localized impacts in dredged locations. The Corps states that "localized holes created by dredging activities appear to refill rapidly in the river after cessation of dredging activities." The draft environmental impact statement includes no information or characterization of the physical nature of these backfill materials. The overall impact of the reservoirs and dredging is to increase the proportion of fine sediment material in the river as coarser material is either trapped behind the dams or extracted by dredging.

Contrary to statements in the draft environmental impact statement regarding the limited habitat supporting benthic organisms suggested by studies from the 1980s, other studies suggest that the invertebrate fauna of the Kansas River is richer and more diverse than previously characterized. During the past three decades, biological surveys of the Kansas River conducted by the Kansas Department of Health and Environment have documented some 287 macroinvertebrate taxa (KDHE Stream Biological Database). Many of these taxa attain their greatest population densities in shallow depositional habitats or in areas of swifter current and coarse (i.e., gravelly) substrate, regions of the river potentially vulnerable to dredging activities. Shifting sand habitats, which were highlighted in the draft environmental impact statement, tend to support sparse macroinvertebrate communities; however, some insect taxa are anatomically adapted to survive in these habitats (e.g., Spieth. 1938. Two interesting mayfly nymphs with a description of a new species. *American Museum Novitates* 970:1-7). The draft environmental impact statement does not consider the impacts of dredging on these varied habitats, macroinvertebrate populations, and the fish and wildlife species dependent upon them for food.

The draft environmental impact statement provides no information on mollusks within its sub-section on these organisms, which have a history of presence within the river system. However, freshwater mussel surveys conducted by the Kansas Department of Health and Environment have shown that the Kansas River supports at least nine mussel species, and historically supported at least 17 mussel species (KDHE Mussel Database; see also Angelo et al. 2009. Historical changes in the occurrence and distribution of freshwater mussels in Kansas. *Great Plains Research* 19:89-126). If earlier biological surveys are considered, at least one additional mussel species may be added to this historical total (Call. 1887. Sixth contribution to a knowledge of the fresh-water Mollusca of Kansas. *Bulletin of the Washburn College*

Laboratory of Natural History 2:11-25). Mussels are comparatively long-lived organisms. They undergo a complicated life cycle, are slow to mature, and are sensitive to changes in environmental condition. They cannot rapidly recolonize benthic habitats modified by dredging operations.

Additional information should include data documenting the Corps' consideration of the impacts of dredging on recovery of pallid sturgeon in the Missouri River basin and other threatened or endangered species listed by the Kansas Department of Wildlife, Parks, and Tourism or the U.S. Fish and Wildlife Service. Pallid Sturgeons (*Scaphirhynchus albus*) are protected by the Kansas Nongame and Endangered Species Conservation Act, the Federal Endangered Species Act, and state and federal regulations applicable to those acts. Recent scientific study has determined that pallid sturgeon embryos are negatively buoyant and sink, and they are sensitive to low oxygen environments. Other studies show that dredging can cause low oxygen environments. Current dredging practices in addition to an impaired oxygen demand environment may limit the ability for pallid sturgeon to recolonize the river. The EPA recommends the Corps consider new monitoring data and document additional consultation with the Kansas Department of Wildlife, Parks, and Tourism and the U.S. Fish and Wildlife Service. The document is lacking data on impacts to fish and wildlife. Recent sampling of the Kansas River not included in the draft environmental impact statement indicates that state listed species are found in the river.

Sandy bottom streams and rivers, like the Kansas, Platte and Missouri Rivers, are characterized by the appearance and disappearance of sand bars and point bars, which provide the "wetter edge environment" supporting many aquatic communities. These same habitats are provided along shoreline edges and by side channels, chutes and backwaters. The changes to the hydrology of the river resulting from dam placement have eliminated those peak flows, which transport habitat-building material and form off-channel habitat. That changed hydrology also reduces the magnitude of low flows, which expose habitat to colonization. Reductions in the actual sediment material itself, caused by construction of reservoirs, the placement of bank revetment and the dredging of the river has removed the material needed to form those "wetter edge" environments.

The EPA is concerned that there may be insufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment.

RECOMMENDATION: The Corps should consider conducting or funding the development of a sediment budget for the river and its major tributaries, which could support the Corps' determination of a sustainable level of sand and gravel extraction by dredgers. A sediment budget should account for sediment transport, erosion and deposition in the Kansas River. This budget would include the mainstem river and its tributaries, particularly the four major reservoirs that serve as sediment sinks within the system. These studies and a sediment budget should be completed and that information evaluated before the Corps considers any applications for dredging within the Kansas River from future applicants.

The Corps should also explore the possibility of conducting or funding studies that would provide information supporting a more direct measure of the biological and ecological health of the river and identifying the locations of particularly critical habitat types such as the natural rock structures present in the lower river.

The Corps should explore the possibility of conducting or funding studies documenting the location and density of sand bars and point bars along the entire 170-mile length of the river to support the development of a more appropriate measure of ecological and morphological health in the river. These

studies would also contribute to the documentation of impacts on these important river features resulting from continued sand and gravel dredging.

Recreation

The draft environmental impact statement notes the presence of 23 access ramps to the river, eighteen since the issuance of the 1990 EIS. Five of the 23 access points are located adjacent to dredging areas as requested by the applicants. The document also recognizes that the river was designated in 2012 as a National Waters Trail by the National Park Service. Yet the Corps claims that “dredging is a historical and ongoing activity” and impacts on recreation only occur if there were to be a change in dredging activities that would cause a change in the availability or quality of recreational access. The revised Regulatory Plan includes measures intended to avoid, minimize and reduce impacts on recreational use.

The draft environmental impact statement provides no information regarding the present or future economic contributions of the river’s recreational use to adjacent communities or to the state. With no information provided regarding economic value, the draft environmental impact statement cannot characterize the impacts of greater, lesser or no river dredging on recreational use and, therefore, the economic benefits of more or less recreational use of the river to the region.

The draft environmental impact statement does not evaluate impacts from dredging on boat ramps, particularly those adjacent to dredging areas. The document provides no information on the effectiveness of mitigation measures intended to prevent or mitigate impacts on recreational use or experience. There was no information included in the draft environmental impact statement regarding whether the Corps monitors dredger performance or compliance with these measures.

Nationwide there have been deaths attributed to boats striking dredge pipes. With increased recreation and more access there is a greater risk of boat / dredge interaction.

Economic Impacts

The draft environmental impact statement defines its “economic and demographic study area” as a 30-mile-wide radius from each producer’s land-based facility. This radius is based on the Kansas Aggregate Producers Association claim that the individual companies can only remain competitive, with each other, within a material haul radius of 30 miles, as other competing producers are situated closer to market. The draft environmental impact statement should not be evaluating the economic impacts of its permitting decision based on its compatibility with the business plans of individual producers or the preservation of their competitive position. Further, the analysis should focus not on product selling price or the profit margins of individual companies, but on the impacts of its decision on the regional economy.

According to KAPA, the producers’ association, the production cost for river dredging averages \$4.50 per ton of material west of Topeka and \$7.00 per ton east of Lawrence. The draft environmental impact statement states that selling price and the gross profit margin are not presented because those vary between companies and operations. The draft environmental impact statement provides that the overall comparative production cost of floodplain pit dredging is approximately 14% higher than river dredging operations. With regard to indirect impacts, there is no information within the draft environmental impact statement describing how material price might affect construction activity within the region.

The draft environmental impact statement couches its economic analysis in terms of contributions by individual companies, but provides no information on the impact of dredging or reduced dredging on the local and regional economy. The draft environmental impact statement states that the direct effect of the industry on the local economy is not significant and is largely limited to a small number of jobs provided by dredging itself. There is no analysis of the potential impact of either no dredging or reduced river dredging on these regional economies. The analysis is largely limited to statements regarding the competitiveness of the dredging companies themselves and the preference for lower cost transportation and extraction and the ease of extracting material from the river. Narratives based on applicant preferences and perpetual access to the lowest cost, highest quality material do not constitute an analysis of regional economic impacts resulting from the selection within a range of reasonable alternatives.

RECOMMENDATION: The draft environmental impact statement should be revised to address the indirect impacts of its permitting alternatives on the regional economy and characterize the economic contributions of recreational use of the river on the regional economy.

Climate Change

The draft environmental impact statement does not include consideration of future climate scenarios, and how they may impact the proposal and its potential impacts. Consistent with the CEQ guidance,^[1] we recommend that the FEIS describe potential changes to the affected environment that may result from climate change. Including future climate scenarios, such as those provided by the USGCRP's National Climate Assessment,^[2] in the FEIS provides context for the proposal and its impacts and whether those could be affected by the changing climate. The EPA recommends that the proposal's design incorporate measures to improve resiliency to climate change, where appropriate. These changes could be informed by the future climate scenarios addressed in the "Affected Environment" section. Additionally, we recommend the Corps apply information from these future climate scenarios to determine whether the environmental impacts of the alternatives would be exacerbated by climate change. If impacts may be exacerbated, additional mitigation measures may be warranted. For example, a drier or wetter regional climate would affect the basin's hydrology and, therefore, the movement of sediment through the river system.

[1] CEQ Guidance, p. 20.

[1] <http://nca2014.globalchange.gov/>

Cumulative Impact Analysis

Seven Corps reservoirs and eleven Bureau of Reclamation reservoirs on tributary streams control a major portion of the flow from this system. Six of the Corps and one of the BOR reservoirs are at the lowest end of their respective river systems and functionally control the sediment discharge to the Kansas River. These reservoirs are retaining sand and sediment which historically would have passed down river and, to varying degrees, are experiencing reduced water storage capacity and increased delta formation. The draft environmental impact statement states that 80% of the basin's total drainage area is controlled by reservoirs. It also states that 51% of the river's flow, as measured at DeSoto, Kansas, originates from discharges from the four largest reservoirs on major tributaries (Tuttle Creek, Perry, Milford and Clinton reservoirs). The cumulative impact of these federal and non-federal actions on river hydrology and ecology is immense. The draft environmental impact statement, however, states that this impact is not significant.

The EPA believes that the Corps' conclusion that "The cumulative impacts of the Proposed Action and other past, present, and reasonably foreseeable activities affecting the Kansas River are not significant" is inaccurate given modifications to the river system in the second half of the last century. Construction of 18 dams on major tributaries to the Kansas River, the construction of smaller dams in the headwaters of smaller tributaries and sporadic armoring of river banks has, in conjunction with commercial sand and gravel dredging, disrupted both the sediment transport and hydrology of the river leading to much reduced levels of sediment moving through the system and into the Missouri River. The cumulative impacts of these federal and non-federal actions has completely transformed the hydrology, ecology and morphology of the Kansas River. The impacts of a significant reduction in bed material in a sandy prairie river on habitat structure has been poorly studied, but is likely to have unsatisfactory impacts on aquatic life.

In 2011, the District finalized its EIS supporting the reissuance of dredging permits for the lower Missouri River in which the District stated that the entire lower Missouri River has been degrading since 1999 with accelerating bed loss in the reach near Kansas City. The river bed in the Kansas City reach has lost approximately four feet since 1995. The interplay between the Kansas River and the Missouri River in the vicinity of the Kansas City metropolitan area with regard to sediment transport should be more completely assessed since this was not done for the 2011 EIS for the Missouri River. In addition, the District completed a Reconnaissance Study in 2009 documenting the extent and significance of bed loss in the lower Missouri River. One conclusion from the study was that "the dredging quantities taken from the lower Kansas River should be evaluated in regard to their potential impact on degradation of the Missouri River channel." Since the issuance of the Reconnaissance Study, the District has been working with local sponsors on a Feasibility Study for addressing river bed degradation in the Missouri River and its tributaries from Rulo, Nebraska to St. Charles, Missouri, with particular interest in impacts to infrastructure in the Kansas City metropolitan area. It is our understanding that the Corps does not intend to proceed with a Feasibility Study as a result of new sediment transport modeling results. The Kansas River provides both flow and sediment load to the Kansas City reach of the Missouri River and needs for sand and gravel within the regional economy are met with commercial dredging on both rivers. Yet the draft environmental impact statement provides no analysis of the potential contribution of Kansas River dredging to either Missouri River bed degradation below the confluence or the relationship between dredging restrictions on both rivers to the regional economy.

RECOMMENDATION: We recommend that the Corps provide supplemental discussion on the potential cumulative effects of dredging associated with the proposed action and past modifications to the river system which have profoundly altered the hydrology and habitat characteristic of a sandy, prairie river. Similarly, it should be further explained how the Corps reached the determination that dredging limits exceeding 200% over the last decade of dredging operations will not pose significant direct, indirect and cumulative impacts to the biological health and integrity of the river system, particularly given that the Corps has used a simplified metric of bed loss within dredged reaches as an indicator of ecological health. Without actual biological information, this measure serves as a poor indicator of stream health. Further, even if we were to accept this metric, an amount of extracted material commensurate with the proposed alternative has historically been correlated with significant bed loss in the Kansas River.

Regulatory Plan and Revisions

Public review of the revised Regulatory Plan would be made easier if the draft environmental impact statement included a 'red-line/strikeout' format in Appendix A. Proposed Corps changes to the Plan,

discussed in Chapter 5 of the draft environmental impact statement, are somewhat confusing and would be better explained by providing a version of the Plan which highlighted actual changes to the current Plan.

The Plan should also be revised to remove language that was placed in the original document that no longer applies after 26 years of implementation. We are providing a list of comments, specific to each section, below.

Introduction

The 1990 Regulatory Plan was designed to rely on a benchmark for determining a “maximum acceptable level of impacts” having “minor effects.” The definitions provided in the Plan for both of these measures are nonspecific and meaningless. Other than surveying dredged reaches for changes in bed elevation, no information has been gathered regarding either ecological or hydrological change in the river system. Yet the document claims to “limit the magnitude of dredging-related impacts to the morphology and ecology of the river.” The Plan links measures and metrics to the prevention of environmental and ecological impacts, however, there is no information or data in the draft environmental impact statement which would indicate that these metrics and measures could serve as indicators of ecological or morphologic condition. The basis for the bed loss and recovery metrics and for prohibitions against dredging too close to structures or river features is completely best professional judgement. The Plan was developed in 1990 to prevent damage to important infrastructure resulting from over-allocating the amount of sand and gravel for harvest in each reach under Corps permit. There is no association between the Plan and its metrics for bed loss and recovery and the potential for damage to river ecology and hydrology. The Plan and its prohibitions are intended only to prevent damage to infrastructure and the Corps has acquired no information regarding sediment budget, habitat damage or alterations to river ecology. There is no basis for claiming, as the draft environmental impact statement does in many places, that implementation of the Plan serves as a protective check against over-allocating extraction under its permits such that environmental damage is prevented.

Dredging Restrictions

The amount of bed degradation from dredging in specific reaches is limited to bed loss equal to or greater than an average of 2 feet along a five-mile reach. The basis for not selecting an amount less than 2 feet as this degradation benchmark was identified as part of the 1990 EIS development process in the District’s Regulatory Report as being based on “the difficulty in monitoring such a small change in bed elevations.”

The Regulatory Plan’s criterion for closure is an average 2-foot limit on bed degradation over 5-miles. This approach could allow for areas well above or well below the limit within the 5-mile reach. Further, the Plan claims that “the maximum allowable reduction in the riverbed elevations is 2 feet for all reaches of the river.” The only reaches surveyed within the river are those with active dredging. Bed elevation change is not typically limited to the immediate area of dredging. Coarse and fine bed material moves downstream from other reaches to refill dredge cuts. Comprehensive changes to river morphology are not monitored under the Plan. The draft environmental impact statement misstates the comprehensiveness of the Plan’s monitoring component.

Reaches closed when the average elevation change is 2-feet or greater are not reopened until average bed elevation exceeds an “established minimum” and “sufficient materials” have accumulated to support

renewed dredging. These terms are not defined and it appears that neither the dredgers or the Corps have assessed the physical nature of the bed materials replacing those dredged nor the impacts of repeated closing and opening on river morphology. The draft environmental impact statement states that nine dredging areas have been closed to dredging between 1991 and 2007. It is unclear whether any of those areas have been reopened and the draft environmental impact statement lacks any information regarding how those recovered areas have responded to renewed dredging. The draft environmental impact statement also states that the Corps closed four dredging areas in 2013. Table 4 also lists two areas between River Miles 26.1 and 27.1 and between River Miles 89.7 and 91.0 as closed, although two applicants have applied to dredge 300,000 tons per area per year there. The draft environmental impact statement also states that none of the requested areas are located in degraded reaches although Table 4 lists these reaches at an elevation change from baseline of -2.34 and -1.42, respectively.

The Plan provides for immediate closure of a degraded reach when a previous survey indicated 1.5 feet or more degradation and a current survey indicates 2 or more feet of bed loss. Those actions are separated by 2 years between surveys and the additional months needed to process and communicate the data to the dredgers. Only when an “unforeseen event” has caused 2 or more feet of degradation without a previous survey showing 1.5 or more feet of loss will the Corps immediately close that reach, although that action will not be taken immediately as the dredgers have a year to exit that reach. The reach reopening process also allows for return dredging, either partially or completely, before the bed aggrades completely to its 1992 baseline elevation.

The scientific basis supporting the reach-specific and dredge-specific restrictions on dredged quantities and the structure-specific prohibitions on dredge distance is not provided either in the draft environmental impact statement or the Regulatory Plan. Many of the distance prohibitions are common to several structures while others are different, without explanation. For example, the upstream and downstream dredging prohibitions for Bowersock Dam are 75 feet and 2,250 feet. Those for the Water District Number 1 and the City of Topeka jetties and weirs are 500 feet and 2,500 feet and 1,000 feet and 2,000 feet, respectively. Dredge prohibition distances vary for other river structures, but the basis for assigning these is nowhere explained.

Similarly, two natural rock deposits, which the Plan acknowledges provide unique and important habitat for aquatic life, are assigned dredge distance prohibitions without explanation. The draft environmental impact statement does not provide any analysis on the impacts of past dredging on these important and unique habitat structures. Other areas providing critical aquatic habitat, such as shorelines, islands and tributary mouths are assigned distance prohibitions, but there is no analysis of the impacts of dredging on these areas or the appropriateness/effectiveness of the prohibition distances. The Plan provides no protection for sand bars or point bars, which provide critical ‘wetted edge’ habitat in a sandy-bottom, prairie river.

As discussed above, there have been reports of injuries associated with recreational boaters encountering dredging operations. The Plan provides no monitoring or reporting mechanism by which the Corps could confirm that permittees are in compliance with the Plan’s safety requirements. There are reports of unattended dredging operations not providing safe passage for watercraft.

RECOMMENDATION: Revise the Regulatory Plan to remove references to the prevention of morphological and ecological damage and explain the basis for all metrics and prohibitions. We also recommend that the draft environmental impact statement separately discuss the results of 25 years of

Plan implementation specific to the protection of man-made and natural river structures and their condition.

We recommend that a more comprehensive monitoring plan that encompasses additional metrics to address the biological health and integrity of the river should be considered. Additionally, monitoring of river bed degradation should be expanded to include reaches of the river outside of the direct dredging area. Monitoring only at the dredge sites does not give a clear and accurate picture of the effects of dredging.

We also suggest that the Corps include a monitoring and reporting component within the Plan's monitoring component addressing the issues listed under Section X of the Plan's restrictions component regarding recreational safety.

We recommend that the Corps evaluate the response of dredge cuts to reopening, including an analysis of bed material type and size which provides this backfilling and whether reopening previously closed dredge cuts results in changes to bed morphology and flow in the area or the cut. This information could be used to evaluate whether closed reaches should remain closed for longer periods than presently required or whether closed reaches should remain closed permanently.

The Corps should evaluate whether dredging restrictions pertaining to natural hard points in the river are adequately protecting aquatic life.

The Corps should consider prohibiting any further permitting within reaches where boat ramps are in-place or are planned based on safe recreational use of the river.

Revisions to the Regulatory Plan should be identified using redline and strikeout format to better explain those changes to the public.

Draft Environmental Impact Statement Rating Definitions

Environmental Impact of the Action

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. The EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative, including the no action alternative or a new alternative. The EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. The EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final Environmental Impact Statement stage, this proposal will be recommended for referral to the Council on Environmental Quality.

Adequacy of the Impact Statement

"Category 1" (Adequate)

The EPA believes the draft Environmental Impact Statement adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft Environmental Impact Statement does not contain sufficient information for the EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft Environmental Impact Statement which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final Environmental Impact Statement.

"Category 3" (Inadequate)

The EPA does not believe that the draft Environmental Impact Statement adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft Environmental Impact Statement that should be analyzed in order to reduce the potentially significant environmental impacts. The EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. The EPA does not believe that the draft Environmental Impact Statement is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft Environmental Impact Statement. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the Council on Environmental Quality.