

# Henry's Fork Salinity Control Project Record of Decision



**June 2013**

## **DECISION TO BE MADE**

This Record of Decision (ROD) documents the decision by the USDA – Natural Resources Conservation Service (NRCS) to implement on-farm irrigation system improvements through producer's voluntary actions in the Upper Henry's Fork River in Sweetwater and Uinta Counties, WY and in Daggett and Summit Counties, Utah.

The ROD is issued pursuant to NEPA (42 U.S.C § 4321 et seq.), the Council of Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508), and EPA's NEPA implementing regulations (40 CFR Part 6, Subpart F). EPA participated in the development of the Henry's Fork Salinity Control Project Plan and Final Environmental Impact Statement (FEIS) as a cooperating agency, with the USDA-NRCS as the lead agency. NRCS's decision to implement irrigation system improvements is based upon the analysis in the FEIS, which identified alternative B as the environmentally preferred alternative. The Notice of Availability of the Draft Environmental Impact Statement (DEIS) was published in the Federal Register by NRCS on January 18, 2013. A public meeting was held in McKinnon, WY on January 21, 2013. The Notice of Availability of the FEIS was published in the Federal Register by the NRCS on April 26, 2013. NRCS's response to comments on the DEIS are included in Appendix A of the FEIS.

## **INTRODUCTION**

The Henry's Fork Salinity Control project is designed to reduce salt loading contributions of the Upper Henry's Fork River to the Colorado River System from irrigated agriculture. The salt loading reduction will be achieved by improving on-farm irrigation systems and by improving some on-farm water delivery ditches in the project area. The Colorado River Basin Salinity Control Act firmly establishes that the purpose of the salinity control project is to reduce the salt load carried by the Colorado River. Two national objectives form the basis for planning salinity control activities. These are to protect and enhance national economic development and to protect and enhance environmental quality. This project is formulated to achieve these objectives.

## **DESCRIPTION OF PROJECT ALTERNATIVES**

NEPA requires that agencies consider alternatives to the proposed action that address the significant issues identified during the scoping process. NEPA also requires that the alternatives analysis include a No Action Alternative.

### **Alternative A – No Action/Future Without Project (FWOP)**

This alternative assumes that no salinity control program will be implemented. Other programs will continue to operate as they have in the past continuing ongoing activities with current programs and rates of implementation. This alternative is the benchmark from which the effects of other alternative plans are measured.

The management of irrigation water is not expected to change appreciably. On-farm irrigation system improvements will occur at a much slower pace than with the recommended plan.

Limited delivery system improvements are expected. Annually, approximately 70,790 acre-feet of water is used for irrigation in the project area. This includes water diverted and stored in reservoirs. This volume is not expected to change overtime if Alternative A is chosen.

Deep percolation from the untreated 20,709 acres of irrigated pasture and hayland will continue at levels that annually contribute 6,540 tons of salt loading to the Colorado River.

### **Alternative B – Irrigation System Improvements (recommended plan)**

This alternative assumes that a limited salinity control project will be implemented. Existing financial and technical assistance programs will continue to operate as they have in the past. However, this recommended plan will increase the available federal funds for assistance. It is assumed that on-farm

irrigation water management will improve due to an increase in technical assistance provided by the NRCS field office and with improved irrigation system capabilities.

Through implementation of the project, on-farm irrigation system improvements will occur at an accelerated rate as producers voluntarily sign-up for improved irrigation systems. It is estimated that through this alternative, 70 percent of the irrigated acres in the project area will have improved irrigation systems. Most of the surface irrigation systems will be converted to side roll, center pivot, and pod sprinkler systems. The remaining 30 percent will remain as an unimproved irrigation system.

A limited amount of on-farm delivery ditches transporting irrigation water from the canal to the field will be improved by converting from dirt ditch to buried pipe. This will reduce seepage and salt loading from these delivery ditches by 99 percent. There are no canal modifications (i.e. conversion to pipeline or canal lining) included in this plan.

Currently, approximately 70,790 acre-feet of water are used for irrigation in the project area. This includes water directly diverted from streams and water stored in reservoirs. The irrigation system improvements outlined in this plan will provide more efficient use of this water. Deep percolation from the 14,096 acres is expected to be treated through the project action, reducing it by approximately 40 percent. The Colorado River salt loading attributed to this project area will be reduced by the reduction of excess deep percolation passing below the plant root zone. Deep percolation of irrigation water results in concentrating and transporting salt in groundwater through the soil and eventually ending up in the Colorado River. All irrigation systems treated through the project will utilize irrigation water derived from surface water sources.

This proposal is not intended to bring new land under irrigation or to provide water to fields that have been infrequently or marginally irrigated. Lands are required to have been irrigated for two of the last

five years to be eligible for financial assistance from EQIP. Any project measure proposed on lands without an adequate irrigation history will not be considered for funding without prior approval by the appropriate state water authority.

The total direct cost of this alternative is estimated to be \$24,851,431.

## **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The environmentally preferred alternative ordinarily “means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (CES, 1981: Forty Most Asked Questions, no. 6a).

The No-Action Alternative does not meet the purpose and objective of the project. Since there is only one action alternative, Alternative B – Irrigation Improvements is selected as the environmentally preferred alternative.

## **MITIGATION AND MONITORING**

Estimates are that 5,631 acres of the approximately 21,000 acre proposed salinity project area are wetland. Some of this wetland is artificial from ditch seepage and on-farm flood irrigation systems. Other wetlands found in and adjacent to the irrigated fields are naturally occurring and being supported by the many streams, rivers, and slope wetlands (receiving water from the Uinta Mountains) within the project area.

Several thousand acres of predominately artificial wetland could be impacted by salinity control measures as on-farm ditches are piped and irrigation systems are improved. The actual extent of wetland impact is not known at this time and depends on the amount of participation in the program, the exact location of

salinity measures, and the specific salinity control practices that are implemented. However, estimates are that at least 800 acres may have their water regime changed enough to affect the plant community that grows there.

The Colorado River Basin Salinity Control Act (43 U.S.C. 1571-1599) authorized the Salinity Control Program and directed the Secretary of Interior to replace incidental fish and wildlife values foregone as a result of implementation of salinity control projects. The Secretary of Agriculture, through the same authorities, as amended and clarified in PL98-569, and through Executive Order 11990, Protection of Wetlands, is also directed to provide for replacement of incidental fish and wildlife values foregone by providing incentives and technical assistance for voluntary actions by landowners eligible for Department of Agriculture programs.

Impacts to wildlife resources and wetlands will be minimized using the following protocol:

- (i) Avoidance: Impacts to fen wetlands\* will be avoided in all cases. Project planners will ensure that all opportunities to avoid impacts to non-fen type wetlands are recognized and incorporated in the plan to the extent possible.
- (ii) Minimization: Project planners will ensure that all opportunities to minimize unavoidable impacts are recognized and incorporated into the plan to the extent possible.
- (iii) Compensation: Project planners will evaluate and quantify remaining unavoidable project impacts and identify appropriate measures to compensate for these impacts. Replacement of incidental fish and wildlife values foregone is synonymous with compensation for unavoidable impacts.

\* Fen: Peat-forming wetlands – more specifically, wetlands characterized by waterlogged spongy ground and contain (in all or in part) soils classified as histosols or mineral soils with a histic epipedon.

The USDA NRCS policy on irrigation-induced wetlands is as follows:

**General Manual, Title 190 Ecological Sciences, Part 410 Compliance with NEPA,**

**410.26 Protection of Wetlands, E. Identifying Wetlands Subject to This Policy:**

(3) Artificial Wetlands – Although not subject to the WC provisions, artificial wetlands may provide important functions that should be assessed and evaluated in the EE. Artificial wetlands may include created wetlands and abandoned filled-in ponds. These also may be created by leaking irrigation structures or waste management systems and/or inadequate irrigation management, or by excavation or impoundments that retain ground or surface water. Compensation is not required under this policy for irrigation or leakage-induced wetlands where no natural wetlands existed before the irrigation or waste management activity, though it may be regulated by other Federal agencies or State or local agencies.

(4) If no natural wetlands exist and wetland hydrology exists only through irrigation or leakage, NRCS will continue to address other NEPA concerns as determined by findings of the EE. Planners will work to educate landowners about the important functions of wetlands and will encourage wetland conservation when implementing appropriate conservation practices.

The compensatory value of habitat enhancements is determined based on a comparison between the habitat values that existed prior to the enhancement activities (baseline conditions) and the improved habitat values. The difference in habitat values between baseline and improved is counted towards compensation. Compensatory value also takes into consideration whether enhancements improve habitat values similar to those foregone. In general, there is a preference for “in place and in kind” compensation, unless it is determined that other options are ecologically preferable, more sustainable, and more efficient for long-term management. The Montana Wetland Assessment Method will be used for site scale monitoring and mitigation calculations if the project moves forward.

The following considerations will be applied when evaluating potential mitigation opportunities:

- (i) Restoration/enhancement of riparian and floodplain areas adjacent to perennial streams and naturally occurring wetland complexes is preferred due to their increased threat and high wildlife habitat value.
- (ii) Habitat replacement must be consistent with and enhance local and area-wide resource management plans and agency and public priorities for species and habitat conservation.
- (iii) Habitat replacements will be prioritized based on their proximity to an already protected area or their ability to connect protected areas. Establishment of a new, dedicated wildlife area will be considered.
- (iv) Habitats and measures to be applied must be sustainable with a minimum requirement for long-term maintenance and remediation.
- (v) Monitoring plan to determine how well habitat improvements are compensating for habitat values foregone. However, monitoring, by itself, will not be considered mitigation.

The actual extent of wetland impacts will be determined on a field-by-field and site-specific basis if the salinity project is approved. For instance, it is unlikely that full conversion of wetlands will occur. More likely, the wetland hydrology, size, and thus functional value, will be reduced by irrigation improvements, not eliminated. Smaller-scale analysis is also needed to tease apart the complex hydrology of the region. At the basin scale, it is nearly impossible to determine whether wetland hydrology is currently being supplied by "wild flood" irrigation, on-farm delivery ditch seepage, canal seepage, slope wetlands, other sources, or a combination. It is probable that only after the irrigation improvements occur will it be possible to determine conclusively if wetlands were caused by flood irrigation, on-farm delivery ditches, or some other source not affected by the on-farm irrigation improvements. Site-specific monitoring and habitat assessment will be evaluated using the Montana Wetland Assessment Method (Berglund and McEldowney 2008), conducted by a trained individual, with the assistance of participating landowners. Once the amount of impact is estimated on a case-by-case basis, specific mitigation alternatives can be

developed. However, assuming 800 acres of artificial wetland may be impacted through salinity measures, it is difficult to determine how all these impacts will be fully replaced, although all replacement opportunities are being pursued.

Currently, 129 acres of on-site replacement have been identified through various practices and additional replacement opportunities are being identified. Most of the identified replacement possibilities do not involve actual wetland creation or enhancement and thus do not provide as high of replacement value within the MT Wetland Assessment Method (Berglund and McEldowney 2008). For instance, it is believed that with planning and financial assistance from NRCS and other entities, landowners can implement practices to improve riparian vegetation on approximately 90 acres through grazing and wildlife management, with facilitating practices, and remove invasive species on 25 additional acres, which has been identified as a priority by USFWS.

Further, we are currently in the planning stages with Trout Unlimited regarding in-stream improvement projects within the drainage whose value is not well represented by the MT Wetland Assessment Method (Berglund and McEldowney 2008). It is anticipated that with NRCS planning and financial assistance, landowners will replace four "push-up" style diversions with more permanent water control structures as part of this salinity project. Replacement of these earthen diversions has the potential to improve riverine wetland functions along Henry's Fork through improved sediment transport, more stable stream channel geometry, improved aquatic organism passage, and possible increased in-stream flow (Appendix C, EIS). There may also be opportunities to address fish passage and barrier structures on some of the tributaries to Henry's Fork. However, these functional values are difficult to quantify pre-treatment.

Several efforts are also ongoing in the surrounding upland habitats. However, we only anticipate being able to create or enhance wetlands on 14 acres within the project area. Opportunities are currently being explored to secure additional outside funding to provide mitigation on private lands outside the immediate

project area and/or on public lands. Opportunities that are being pursued include requesting funding from the Colorado River Salinity Forum to apply towards replacement not eligible under NRCS programs (i.e. public land projects, property purchases, etc.).

Discussions related to possible refuge (e.g. Seedskadee, Flaming Gorge) expansion if outside replacement funds become available have already occurred. We are also working with state wildlife agencies to identify and cost-share nearby habitat improvement projects, cooperating with area non-government organizations (NGO) such as Trout Unlimited and Rocky Mountain Elk Foundation to identify possible replacement projects. Further, we are looking at ways to leverage some of our existing funding with funds from the Wyoming Wildlife and Natural Resource Trust Fund (WWNRT), the Wyoming Landscape Conservation Initiative (WLCI), Wyoming Land Trust, and other smaller funding sources. The quantity and quality of replacement such collaboration will result in is unknown at this time.

The Montana Wetland Assessment Method (Berglund and McEldowney 2008) has been and will continue to be used to evaluate the effectiveness and thus value of replacement measures. An individual trained in the skills required to understand and populate the assessment will complete such analysis. The Montana Wetland Assessment Method was used to determine the relative replacement value of proposed riparian improvements. The large-scale, rough assessment of riparian wetlands (500 acres) in the Henry's Fork area are estimated currently to be functioning at approximately 61 percent of possible, with a total of 3,025 functional units (chart 8). Predicted vegetation and habitat changes associated with grazing and wildlife management, with facilitating practices, would be able to improve wetland function by up to 10 percent based on this model. Treatments of invasive species would improve the wetland function by up to 4 percent. Thus, improving riparian habitat on 90 acres by 10 percent would result in 90 functional points for replacement or 4.5 percent of the 2,000 functional points we expect to lose through this project. Removing invasive species on 25 acres would result in an additional 10 functional points for replacement or 0.5 percent of the 2,000 functional points lost. If the 15 acres of wetland creations or enhancements

function at 60 percent, rather than the current 36 percent, they would provide 24 functional points for replacement, or 1.2 percent of the 2,000 functional points lost. In total, the 129 acres of identified replacement opportunities would replace 124 functional points or 6.2 percent of the 2,000 functional points expected to be lost. Other replacement opportunities will be pursued, but at this time, it is anticipated that some of the lost functional value will not be replaced.

**Management Considerations:**

The Henry's Fork River is tributary to the Green River, which is a primary tributary to the Colorado River. The Colorado River provides domestic and industrial water for some 35 million Americans and is used to irrigate approximately 4 million acres of land in the US. The river also provides irrigation, domestic, and industrial water to Mexico. Water deliveries from the U.S. to Mexico are governed by treaties between the two countries that prescribe amounts and quality of the water delivered.

Through the combined actions of all the Colorado River Basin partners, the salt load of the Colorado River has now been reduced by about 1.2 million tons annually. In order to maintain the current water quality (with respect to salinity concentrations), prevent increased damages, and allow for full development of water resources under the Colorado River Compact an additional .5 to 1 million tons of salt control is needed by 2030.

Annual damages from dissolved salts in the lower basin of the Colorado River have been quantified as high as \$350 million.

**Alternative A - No-Action Alternative** does not meet the purpose and objective of the project. In the future with no action scenario, the project area will continue to produce deep percolation from the untreated 20,709 acres of irrigated pasture and hayland.

**Recommended Alternative B – Irrigation System Improvements:**

- Will implement on-farm irrigation improvements on 14,096 acres will reduce deep percolation by 40 percent, resulting in an annual salt load reduction of 6,540 tons/year into the Colorado River System. This alternative meets the purpose and objective of the project.
- Economic benefits for landowners converting to sprinkler are increased yields from an average of 1.5 tons per acre of hay to 3.3 tons per acre.
- The estimated net depletion of 1,372 acre-feet to the Colorado River system would be mitigated through a payment to the Colorado River Recovery Program of  $\$19.82/\text{Acre Foot} = \$27,193.04$ .
- Irrigation-induced wetland acreage is expected to decline by 800 acres. Wetland-dependent species are likely to decrease. Upland/forage-dependent species may increase.
- Approximately 129 acres of on-site wetland mitigation can be achieved under various practices through voluntary participation with USDA conservation programs. Additional mitigating habitat compensation is expected through participation with Partner entities.

Based on the information and evaluation of the two alternatives in FEIS and summarized here, the NRCS has selected the Recommended, and the Environmentally Preferred, Alternative B – Irrigation System Improvements.

**PUBLIC INVOLVEMENT**

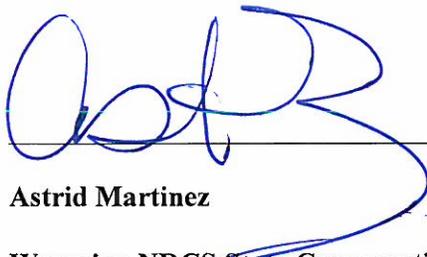
The public involvement process is presented in the FEIS. The following is a chronology of the public involvement process for the DEIS and FEIS:

- August 12, 2011: The Notice of Intent (NOI) was published in the Federal Register and announced the NRCS's intention to develop an EIS under NEPA for the Henrys Fork Salinity Control Project. The NOI initiated the 30-day public scoping period.
- January 18, 2013: The Notice of Availability for the DEIS was published in the Federal Register.
- January 21, 2013: A public meeting was held in McKinnon, WY.

- April 26, 2013: The Notice of Availability for the FEIS was published in the Federal Register.

## CONCLUSIONS

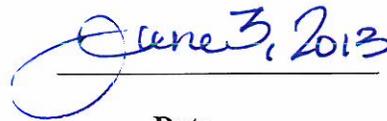
This document serves as the public Record of Decision (ROD) as described in 40 CFR 1505.2 of the CEQ regulations. By signing this Record of Decision (ROD), we select the Recommended Alternative B - Irrigation System Improvements as presented and described in the FEIS, and approve the project implementation of the Henrys Fork Salinity Control Project in accordance with statutory and contractual obligations.



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**Astrid Martinez**

**Wyoming NRCS State Conservationist**



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**Date**