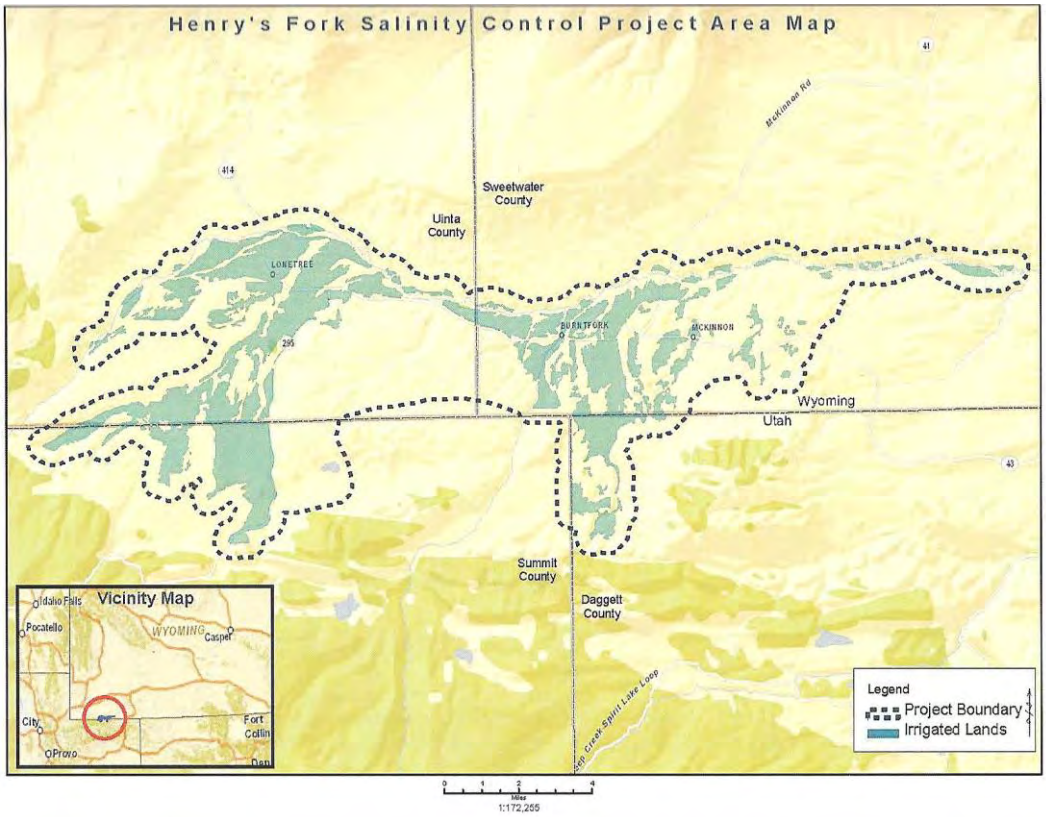
Henry's Fork Salinity Control Area

Monitoring and Evaluation Report

Fiscal Year 2023



Wildlife/Wetland Value Assessments and Habitat Replacement Projects

Summary

Two new wetland assessments were completed in 2023. Follow-up assessments were completed for practices that have been in place for at least one year. The 2023 year saw above average precipitation conditions in the Henry's Fork area. No significant changes to vegetation appeared to occur. Photos were taken at each site and compared to pre-project conditions, which can be found in the "*Follow-Up Wetland Assessments of Irrigation Projects*" section of this report. Two habitat replacement projects were completed in 2023. For further information, please see the "*Habitat Replacement Projects*" section. Since 2013, 850.9 irrigated acres have been assessed and are operating under conservation practices. Of those total assessed acres, 461.7 acres were found to contain 1,606.73 wetland habitat values. ***At this time, no habitat values have been lost since the start of the project and there is a surplus of 255.42 habitat values.*** A summary of current habitat replacement values can be found in Table 1 and 2 below.

Table 1: Summary of Replacement Values in the Henry's Fork Salinity Control Area.

Project Area	Project Starting Year	FY22 Replacement Habitat Values Applied and Maintained	FY22 Replacement Wildlife Habitat Values Current Surplus	Replacement Habitat Values in Active Contracts	Potential Habitat Value Deficit	Current Habitat Value Deficit
Henry's Fork	2013	255.42	+255.42	0	-1606.73	0

Table 2: Habitat values present for all Salinity Control Program projects in the Henry's Fork area, based on the Montana Wetland Assessment Method.

Name	Year Installed	Irrigated acres Assessed	Wetland Acres Assessed	Total Habitat Values Present Before Treatment	Habitat Values Lost Since Treatment
Pallesen Pod-line	2014	2	0	0	0
Thomas Pod-line	2015	27.6	1.3	3.77	0
Crowther Pivot	2015	40	2.95	7.67	0
S. Slagowski Pivot	2015	25.1	1.02	1.84	0
B. Slagowski Pivot	2015	48.4	5.0	15.00	0
M. Beck Pivot	2016	100	83.5	292.25	0
Anderson Pivot & Gated Pipe	2017	59.3	26.1	70.47	0
DR Livestock Pivot 1	2018	31.9	3.4	8.5	0
Petersen Pod-line & Gated Pipe	2019	12.5	9.8	32.34	0
D. Beck Ranch	2019	80	31	105.4	0
DR Livestock Pivots 2 &3	2019	42	2.6	7.8	0
S. Slagowski Pod-Lines	2019	11.3	0.83	2.48	0
Taylor Ranches Pivot	2021	23.1	23.1	71.7	0
JRB LLC Pivot and Wheel-line	2023	86.7	56.1	199.41	0
Hill Wheel-line	TBD	105	105	304.5	0
Bowler Pivots	TBD	156	110	483.6	0
Totals		**850.9**	**461.7**	**1606.73**	**0**

Wetland Assessments Prior To Irrigation System Installation

- Hill Wheel-line Project- In June 2023, 105 irrigated acres were assessed and contained wetland habitat values. The field will be improved from flood to wheel-line irrigation. The field is seasonally grazed, but no cattle were present during the assessment. Standing water, saturated soils and water running through ditches were present throughout the area. The dominant vegetation included rushes, arrowgrass, iris, sedges and field grasses. This vegetation was consistent across the assessment area where the wheel-line will be located. The assessment was broken into two sections- seasonal wetland acres where the wheel-line will be located and approximately 13.8 acres to the southeast of the wheel-line that appears to be a permanent wetland. This area had considerably more standing water, hummocks, some bulrush and moss present. No soils tests were completed, but photos were taken. While these acres were excluded from the wheel-line area and will not be directly impacted, they were included to document any indirect effects. Adjacent habitat included a highway to the west and agriculture land surrounding most of the field. It is located approximately 0.2 miles from the Henry's Fork Riparian corridor.
- **304.5** Total wetland habitat values present prior to irrigation improvement.

Photo 1: Southwestern end of the field facing north, June 2023.

Photo 2: Southeastern edge of wheel-line location where seasonal changes to permanent water regime, June 2023.

Photo 3: Center of the permanent water regime acres facing north, June 2023.

Photo 4: Northeastern section of the field facing southwest, June 2023.

- Bowler Pivots Project- In June 2023, 156 irrigated acres were assessed and 110 of those acres contained wetland habitat values. The field is planned to be improved from flood to pivot irrigation. This area is located approximately 1 mile south of a highway and 0.5 miles from the Birch Creek riparian zone. It is surrounded by upland and agricultural lands. This area is seasonally grazed/hayed though no cattle were present during the assessment. Standing water, saturated soils, and wetland vegetation were found on the wetland acres. Vegetation included rushes, sedges, field grasses and moss. Irrigation ditches had running water with scattered willows and horsetail. Golden banner pea was found in patches throughout the area. Upland areas were found on 46 acres and vegetation included sagebrush, rabbitbrush and antelope bitterbrush.
- **483.6** Total wetland habitat values present prior to irrigation improvement.

Photo 5: Southwestern end of the field where the irrigation reservoir will be located, June 2023.

Photo 6: Southeastern section of the field with standing water present, June 2023.

Photo 7: Center of the field facing south near main irrigation ditch, June 2023.

Photo 8: Northwestern edge of field that contained upland habitat that was not included in wetland assessment, June 2023.

Follow-up Wetland Assessments of Irrigation Projects

Follow-up wetland assessments occur when a conservation practice has been in place for at least one year and wetland characteristics of the assessment area appear to have changed from pre-practice conditions. If no significant changes have occurred, photos are taken but a wetland assessment will be planned for the following year, so that the impacts are fully realized. Follow-up assessments will also be postponed if normal conditions are not present.

- R. Slagowski Pivot was installed in November 2015. A site visit was completed in June 2023. Wetland characteristics were still present on the 5 acres previously assessed. Photos were taken and the follow-up assessment was postponed for the following year.

Photo 9: Southern end of field in June 2015 (left) and June 2023 (right).

- D. Slagowski pivot was installed in September 2016. A site visit was completed in June 2023. There appeared to be wetland characteristics still present on the 1.02 wetland acres previously assessed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 10: Eastern toe-slope of field facing south June 2015 (left) and June 2023 (right).

- Crowther pivot was installed in September 2016. A site visit was completed in June 2023. There appeared to be wetland characteristics still present on the 2.95 wetland acres previously assessed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 11: Eastern toe-slope of field facing south July 2015 (left) and June 2023 (right).

- M. Beck center pivots were installed in September 2016. A site visit was completed in June 2023. There appeared to be wetland characteristics still present on the 83.5 wetland acres previously assessed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 12: Center of western pivot field facing south June 2016 (left) and June 2023 (right).

Photo 13: Pond located at north end of field June 2016 (left) and June 2023 (right).

- Thomas pod-lines were installed in March 2017. A site visit was completed in June 2023. There appeared to be wetland characteristics still present on the 1.3 wetland acres previously assessed at the northeastern toe of the slope. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 14: The northeastern toe of the pasture July 2015 (left) and June 2023 (right).

- Anderson pivot and gated pipe were installed November 2017. A site visit was completed in June 2023. Both fields still contained wetland vegetation along the irrigation ditches. Thistle, yellow sweet clover and white-top present. Noticeable changes were found on approximately 15 acres of the 26.1 wetland acres assessed due to new plantings and recent haying in 2020, but those changes have become less noticeable. The field now contains hay grasses, alfalfa and wetland vegetation. Photos were taken and a follow-up assessment will occur next year.

Photo 15: Anderson pivot field overview facing north July 2017 (left) and June 2023 (right).

Photo 16: Anderson gated pipe field facing north July 2017 (left) and June 2023 (right).

- DR Livestock North Pivot was installed in November 2017. A site visit was completed in June 2023. Wetland characteristics still present in the 3.4 acres assessed on the north and south sides of the field. Rushes, sedges and hay grasses were found in most of the field, with patches of sagebrush. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 17: West end of DR Livestock north pivot July 2018 (left) and June 2023 (right).

- Petersen Ranch Pod-lines and Gated Pipe were installed fall of 2019. A site visit was completed June 2023. The north field where gated pipe was installed still contains rushes, sedges, hay grasses and saturated soils throughout the area. The south field where pod-lines had been installed had recently been hayed so an assessment was not completed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 18: South end of north gated pipe field July 2019 (left) and June 2023 (right).

Photo 19: Southwestern section of the pod-line field July 2019 (left) and June 2023 (right).

- D. Beck Ranch Pivots were installed fall 2019. A site visit was completed in June 2023. Wetland characteristics were still present in the 31 acres assessed in the eastern pivot field. Hay/meadow grasses, sedges, rushes, arrowgrass and saturated soils were still present. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 20: Southern end of the eastern pivot field July 2019 (left) and June 2023 (right).

- DR Livestock Pivot #2 was installed fall 2019. A site visit was completed in June 2023. Wetland characteristics were still present in the 2.6 acres assessed in the #2 field. Saturated soils in depressions, wild iris, rushes and sedges still present. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 21: Northwestern corner of pivot field #2 near irrigation ditch, July 2019 (left) and June 2023 (right).

- S. Slagowski Pod-Lines were installed spring of 2020. A site visit was completed June 2023. Wetland habitat was still present on the 0.83 acres assessed. Standing water still present in draw, as well as rushes, sedges and saturated soils. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 22: Draw in pod-line field with standing water and wetland vegetation present, July 2019 (left) and June 2023 (right).

- Taylor Ranches Pivot was installed January 2021. A site visit was completed June 2023. Wetland vegetation and saturated soils were still present on the 23.1 acres assessed.

Photo 23: Center of field facing northeast with wetland characteristics present, June 2020 (left) and June 2023 (right).

Habitat Replacement Projects

Two habitat replacement projects were completed in 2023. The projects were diversion improvements included in the Henry's Fork Fish Passage Project. The Whipple diversion is located in Utah on the West Fork of Beaver Creek within the Salinity Control area. The previous structure was a push-up dam that required instream heavy-equipment maintenance several times a year. It created a seasonal fish barrier as well as increased sedimentation to the river. In December 2023, it was improved to a rock vane structure that reconnected native fish passage for an estimated 2 stream miles. **4.99 habitat values were accrued with this project**.

Photo 24: Whipple diversion October 2020 (left) and December 2023 after improvements (right).

The Donahue diversion was also improved in December 2023. It is located on Poison Creek of the Henry's Fork near Lonetree, Wyoming. It similarly was a push-up dam that reduced fish passage and increased sedimentation to the system. It was improved to a rock-vane structure that reconnected an estimated 4 stream miles for Colorado River cutthroat trout and other native fish species. **9.98 habitat values were accrued with this project.**

Photo 25: Donahue diversion before construction (left) and after improvements (right), December 2023.

Several habitat replacement projects are planned for implementation in 2024. The Henry's Fork Fish Passage Project was delayed due to permitting constraints, but we are on track to get the remaining implemented in 2024. The project received full funding in 2022 and two more diversions have been added to the project scope. For photos of the Henry's Fork Fish Passage project, please see the 2019 Monitoring and Evaluation Report.

The Interstate Canal diversion improvement project was also delayed due to permitting issues but is scheduled for construction fall 2024.

Considerations and Conclusions

There were two irrigation improvement projects that required wetland assessments in 2023 in the Henry's Fork Salinity Control Program Area. The assessments were performed during the irrigation season to identify maximum wetland characteristics. The assessment identified 215 acres with 788.1 wetland habitat values present before practice installation. Follow-up site visits to twelve irrigation projects that have been in operation for over a year were completed. No noticeable changes in wetland characteristics were found. All follow-up assessments were

postponed for another year to fully capture any permanent changes. **No habitat values have been lost at this time.**

Although no habitat values have been lost to date, we have completed habitat projects in anticipation of values that may be lost over time. There have been eight habitat replacement projects completed: Peoples Canal Fish Barrier, the Beaver Creek diversion improvement project, the Nelson diversion improvement project, riparian fencing on the Molly Bullock pasture on Beaver Creek, the Blue Bell diversion improvement project, riparian fencing on the House pasture of Beaver Creek (summarized in previous reports) and the Whipple and Donahue diversion improvement projects . The Beaver Creek riparian fence projects will be monitored as needed to document any measurable vegetative changes. There are several diversion projects that are planned for implementation this year. **Currently, we have 255.42 replacement habitat values accumulated** (See tables below).

Table 3: Completed and Planned Habitat Replacement projects and their estimated totals using the replacement value calculator or MDOT wetland assessment form.

Name	**Habitat Value**	**Replacement Value Totals***
Peoples Canal Fish Barrier	100 stream miles protected	178.2
Beaver Creek Diversion Improvement	6 stream miles reconnected	14.9
Nelson Diversion Improvement	10 stream miles reconnected	24.9
Blue Bell Diversion Improvement	9 stream miles reconnected	22.45
Whipple Diversion Improvement	2 stream miles reconnected	4.99
Donahue Diversion Improvement	4 stream miles reconnected	9.98
		255.42 Total Completed
Molly Bullock Riparian Fencing	26 acres excluded from grazing	139.1 present, estimate will improve by 50-100 pts
House Pasture Riparian Fencing	15 acres excluded from grazing	57 present, estimate will improve by 50-100 pts
Planned Replacement Projects		
Interstate Canal Diversion Improvement	12 stream miles reconnected	29.94 estimated
Mainstem diversions improvement	40.8 stream miles reconnected	101.79 estimated

*See Appendix A for Value Calculations

Appendix A

Replacement Habitat Values Calculations

The replacement value calculator was developed by cooperating agencies and partners (NRCS, Wyoming Game and Fish Dept, Fish and Wildlife Service and Trout Unlimited) to add value to out-of-kind wildlife habitat replacement projects that were not captured with the MDOT wetland assessment method. These project types include: wetland and upland easements, refuge expansion, upland habitat improvement, instream flow, fish barrier construction, fish screen construction and fish friendly diversions. The calculator can also be used with the MDOT wetland assessment tool to estimate replacement values for certain projects that cannot be monitored after installation. These projects include wetland restoration, wetland enhancement, wetland creation, riparian grazing and instream habitat improvements.

*(Location + Similarity + Species)Misc. Multiplier*Size*Ranking*MDOT = Replacement Value*

Location = Location of wildlife replacement project (Henry's Fork Salinity Control Area= 5, Green River Watershed below Fontenelle Reservoir = 3, Green River above Fontenelle Reservoir=1)

Similarity = Similarity to lost values (In-kind wetland values= 4, Out-of-kind values = 1)

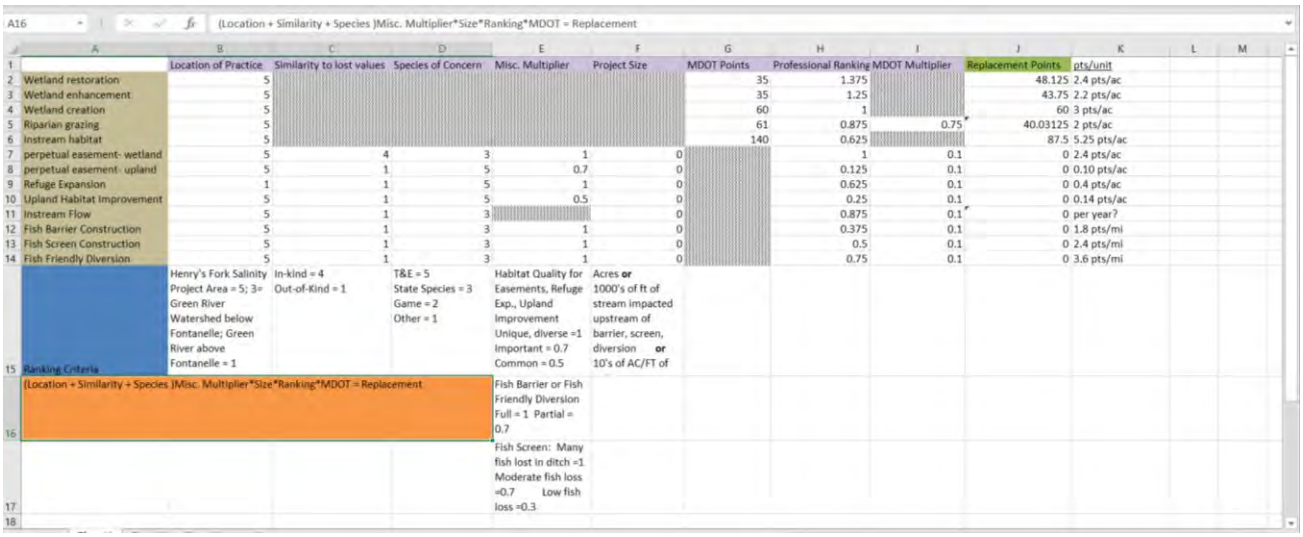
Species = Species of Concern benefitting from project (Threatened & Endangered= 5, State Species of Concern= 3, Game= 2, Other =1)

Misc. Multiplier = Habitat Quality for easements, Refuge expansion, Upland improvement (Unique/Diverse = 1, Important = 0.7, Common = 0.5), Fish barrier or fish friendly diversion (full= 1, partial = 0.7), Fish screen (many fish lost in ditch= 1, moderate fish loss = 0.7, low fish loss= 0.3).

Project Size = Acres **or** 1,000's of feet of stream impacted upstream of barrier, screen, diversion **or** 10's of Acre/Ft of water

Professional Ranking = Ranking based on interested parties' professional preference for project prioritization (NRCS, FWS, WGFD, TU). See the replacement value calculator for all ranking values.

MDOT Multiplier = Multiplier that relates replacement project values to the values calculated with the Montana Wetland Assessment Method. See the replacement value calculator for all multiplier values.



	Location of Practice	Similarity to lost values	Species of Concern	Misc. Multiplier	Project Size	MDOT Points	Professional Ranking	MDOT Multiplier	Replacement Points	pts/unit
Wetland restoration	5					35	1.375		48.125	2.4 pts/ac
Wetland enhancement	5					35	1.25		43.75	2.2 pts/ac
Wetland creation	5					60	1		60	3 pts/ac
Riparian grazing	5					61	0.875	0.75	40.03125	2 pts/ac
Instream habitat	5					140	0.625		87.5	5.25 pts/ac
perpetual easement- wetland	5	4	3	1	0		1	0.1	0	2.4 pts/ac
perpetual easement- upland	5	1	5	0.7	0		0.125	0.1	0	0.10 pts/ac
Refuge Expansion	1	1	5	1	0		0.625	0.1	0	0.4 pts/ac
Upland Habitat Improvement	5	1	5	0.5	0		0.25	0.1	0	0.14 pts/ac
Instream Flow	5	1	3		0		0.875	0.1	0	per year?
Fish Barrier Construction	5	1	3	1	0		0.375	0.1	0	1.8 pts/mi
Fish Screen Construction	5	1	3	1	0		0.5	0.1	0	2.4 pts/mi
Fish Friendly Diversion	5	1	3	1	0		0.75	0.1	0	3.6 pts/mi
Ranking Criteria	Henry's Fork Salinity Project Area = 5; 3= Green River Watershed below Fontanelle; Green River above Fontanelle = 1	In-kind = 4 Out-of-Kind = 1	T&E = 5 State Species = 3 Game = 2 Other = 1	Habitat Quality for Easements, Refuge Exp., Upland Improvement Unique, diverse =1 Important = 0.7 Common = 0.5	Acres **or** 1000's of ft of stream impacted upstream of barrier, screen, diversion **or** 10's of AC/FT of					
(Location + Similarity + Species)Misc. Multiplier*Size*Ranking*MDOT = Replacement				Fish Barrier or Fish Friendly Diversion Full = 1 Partial = 0.7						
				Fish Screen: Many fish lost in ditch =1 Moderate fish loss =0.7 Low fish loss =0.3						

Photo 19: Henry's Fork Replacement Value Calculator

Habitat Replacement Project Calculations:

Peoples Canal Fish Barrier= (5 +1 + 3)1*528*0.375*0.1 = 178.2
Blue Bell Diversion Improvement- (5+1+3)0.7*47.52*0.75*0.1 = 22.45
Beaver Creek Diversion Improvement= (5+1+3)0.7*31.6*0.75*0.1= 14.9
Nelson Diversion Improvement = (5+1+3)0.7*52.8*0.75*0.1= 24.9
Molly Bullock Riparian Fencing = 26 acres assessed with MDOT tool with 139.1 values present. (see Molly Bullock Riparian Fence wetland assessment for totals calculation). Will monitor annually to document any changes that have occurred.
House Pasture Riparian Fencing= 15 acres assessed with MDOT tool with 57 values present (see House Pasture Riparian Fence wetland assessment for totals calculation). Will monitor annually to document any changes that have occurred.
Whipple diversion= (5+1+3)0.7*10.56*0.75*0.1=4.99
Donahue diversion= (5+1+3)0.7*0.75*0.1= 9.98
Interstate Canal Company Diversion Improvement= (5+1+3)0.7*63.36*0.75*0.1= 29.94 (estimate)
Mainstem Diversions Improvement= (5+1+3)0.7*215.424*0.75*0.1= 131.72 (estimate)

See previous reports for detailed examples of habitat calculations.