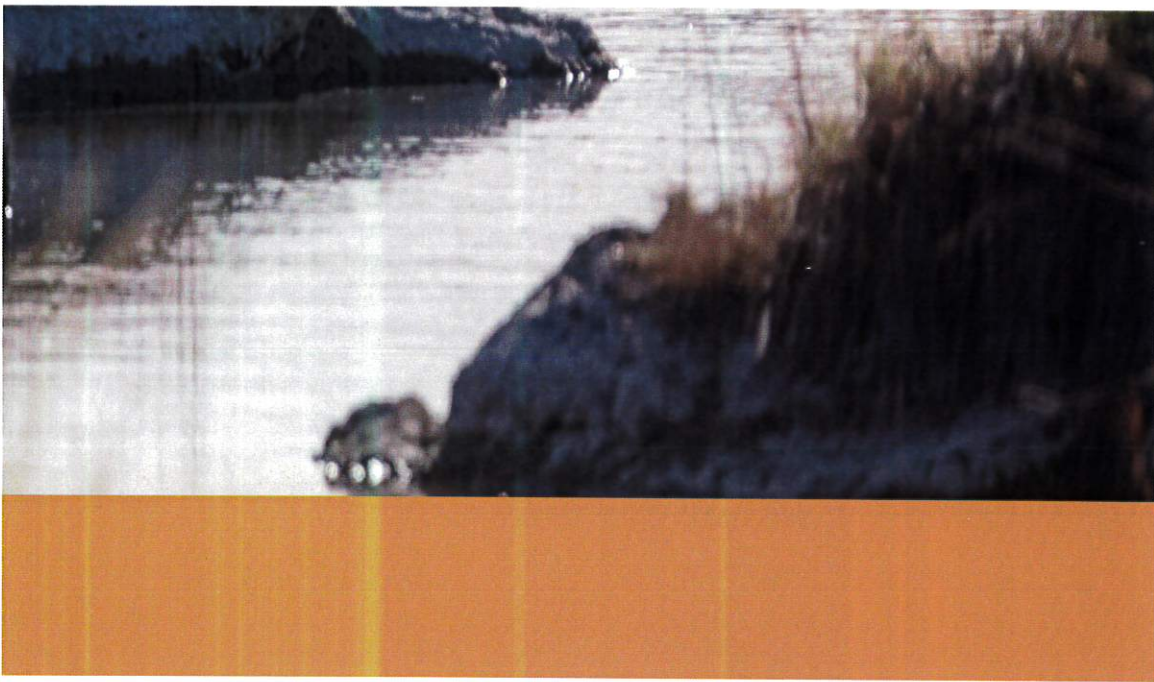




Quarterly Report: 2 – 2023
Candidate Conservation Agreements:
Texas Hornshell (*Popenaias popeii*)



Creating Conservation Through Partnerships



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I. Introduction

This report describes the activities conducted in the second quarter of 2023 under the three sister Candidate Conservation Agreements for the Texas hornshell mussel (THM) (*Popenaias popeii*) and other covered species. The Center of Excellence (CEHMM) administers a Candidate Conservation Agreement (CCA) for federal land and a Candidate Conservation Agreement with Assurances (CCAA) for non-federal and non-state (i.e. private) lands. The New Mexico State Land Office (SLO) administers a CCAA for state trust lands. The three conservation agreements are referred to collectively herein as the “CCA/As.” To the extent practicable, CEHMM and SLO jointly implement the CCA/As in cooperation with the Bureau of Land Management (BLM) and the U.S. Fish and Wildlife Service (Service) through a common governance structure. Figure 1 shows the CCA/A boundary, CCA/A management zones, and land ownership. Additional details about the CCA/As are available in the 2018 annual report and in the agreements themselves, which can be accessed at:

- <http://cehmm.org/thmreports>
- https://www.fws.gov/southwest/es/documents/R2ES/TxHornshell_CCAA_NMCPL_v3_F R29 80.pdf

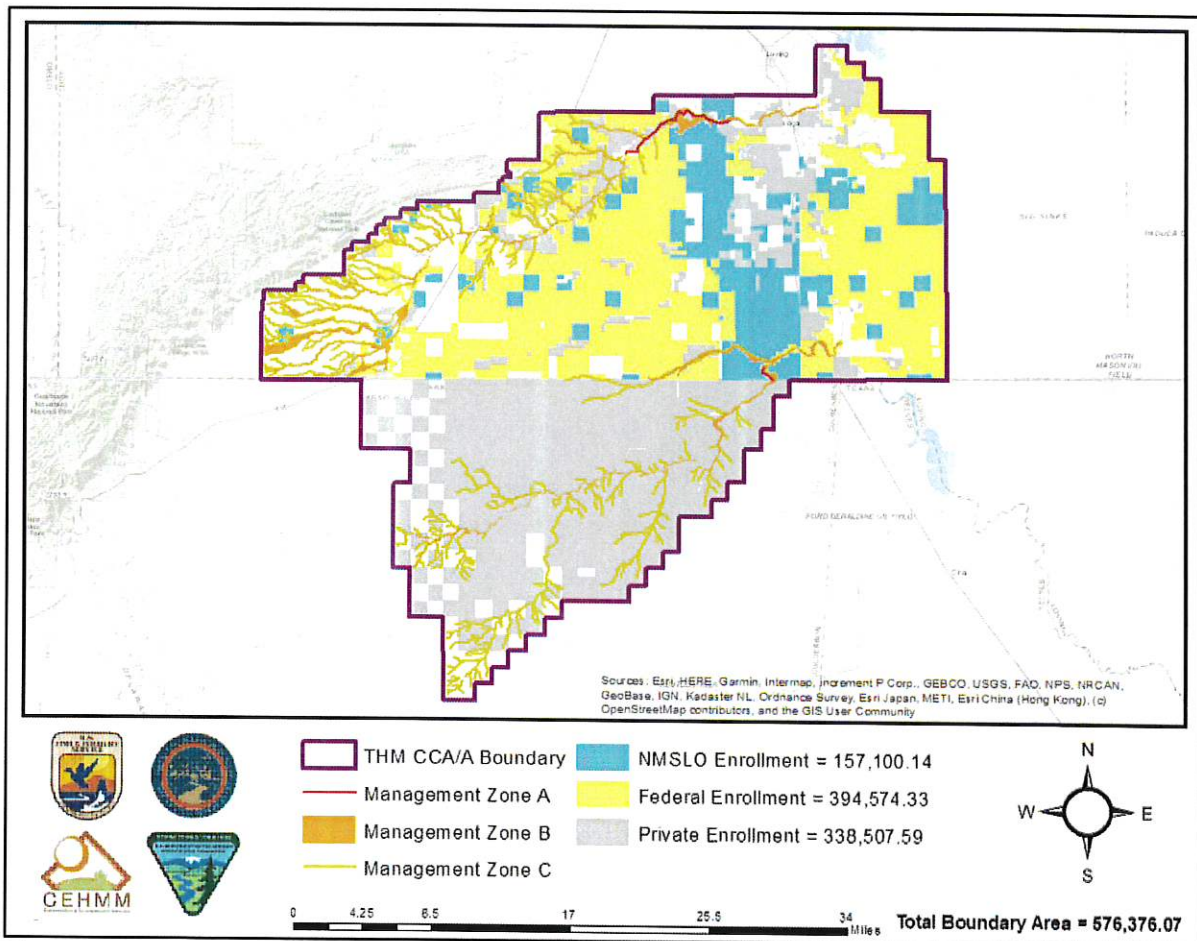


Figure 1. CCA/A Boundary, CCA/A Management Zones, and Land Ownership.

II. Enrollment & Funding

CEHMM administers 42 Certificates of Inclusion (CI) under the CCAA and 33 Certificates of Participation (CP) under the CCA. To date, CEHMM has enrolled 338,507.59 acres in the CCAA and 394,574.33 acres in the CCA. The SLO administers 28 CIs and has 157,100.14 acres enrolled in the CCAA.

Fifty Participants are enrolled in multiple CCA/As due to their combination of land ownership types. The total amount of land enrolled in the CCA/As in 2023 is 890,182.06 acres. Annual acreage can vary since the Participants who opted for “All Activities Enrollment” are able to add or remove enrolled acreage based on their current areas of activity. The same acres can also be enrolled more than once by different Participants who are using the land for different activities; the totals therefore reflect multiple enrollments of the same parcels. CCA/A Participant and parcel acreage enrollment data for 2023 are shown in Table 1.

Table 1. CCA/A Enrollment in 2023.

	CI	CP	Acres Enrolled in CCA	Acres Enrolled in CCAA
CEHMM	42	33	394,574.33	338,507.59
SLO	28	N/A	N/A	157,100.14
TOTAL:	70	33	394,574.33	495,607.73

During the second quarter of 2023, the Hornshell Program at CEHMM earned \$103,355.07 in Habitat Conservation Fees paid under the CEHMM CCA and CCAA. Also, during the second quarter of 2023, SLO CCAA earned \$1,187.99 in Participant Habitat Conservation Fees.

III. Mitigation of Impacts to Habitat

During the second quarter, CEHMM received a total of 25 notices of new surface disturbances from industry, with 121.06 acres of new surface disturbances documented. All of these disturbances took place in Management Zone D. The SLO received 1 notice of new surface disturbance from industry, with 0.80 acres of new surface disturbances documented during the second quarter of 2023. CEHMM worked with the Participants to ensure all the proper conservation measures were followed including Reasonable and Prudent Practices for Stabilization (RAPPS) and Spill Prevention Control and Countermeasure (SPCC). These practices included water bars, silt fences, culverts, erosion blankets, waddles, and reseeding. These details are shown in Table 2 below.

Table 2. New Surface Disturbances in the Second Quarter of 2023.

	Well Pads	ROWs	Infrastructure	Total
CEHMM				
Notifications of New Surface Disturbances	4	14	7	25
Acres Disturbed	20.01	84.67	16.38	121.06
SLO				
Notifications of New Surface Disturbances	0	1	0	1
Acres Disturbed	0.00	0.80	0.00	0.80
COMBINED				
Notifications of New Surface Disturbances	4	15	7	26
Acres Disturbed	20.01	85.47	16.38	121.06

IV. Habitat Monitoring

Black River Discharge Monitoring

The CCA/A set a temporary minimum flow goal of 9.3 cubic feet per second (cfs) at the Malaga gage on the Black River. This is pending the development of a revised flow requirement for the THM by August 2023. Since the CCA/A took effect in 2017, CEHMM has monitored the daily average flow at existing United States Geological Survey (USGS) flow gages in the Black River at Malaga (USGS 08405500) and Blue Springs (USGS 08405450) (Appendix B). Per the CCA/A, CEHMM staff set alarms on the Black River Above Malaga gage; when river flows are below 9.3 cfs, they are notified and can monitor the river more closely. In 2019, two additional gages were installed in the Black River with one new gage Black River at Harkey Crossing (USGS 08405400) and the second gage Black River Below Blue Springs (USGS 08405350) (Appendix B).

Along with gage data monitoring, CEHMM physically monitored the Black River every week in quarter two. According to the USGS gage at Above Malaga, the monthly average discharge for quarter two in the Black River was 5.15 cfs in April, 5.64 cfs in May, and 2.78 cfs in June. The daily average discharge was below the 9.3 cfs threshold 98.90 percent of the days in the second quarter of 2023. See Figure 2 and Table 3 for second quarter flow rates. During periods of low flow which may pose a threat to the THM, participants in the CCA/A who withdraw water from or near the Black River are notified to allow them to implement any pumping curtailment conservation measures contained in their CIs/CPs. CEHMM and the New Mexico Department of Game and Fish (NMDGF) sent out a notice of curtailment one time during the second quarter of 2023.

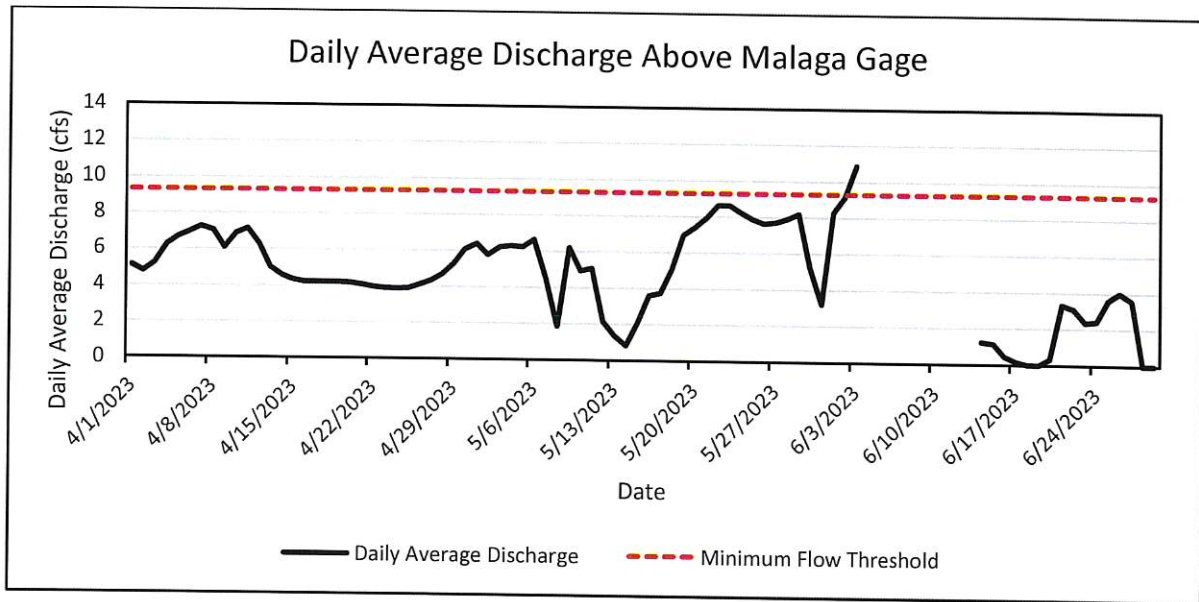


Figure 2. The Daily Average Discharge of the Black River at the USGS Black River Above Malaga Gage During the Second Quarter of 2023

Table 3. Monthly Average, Minimum Daily Average, and Maximum Stream Flow in cfs Calculated by CEHMM using USGS Instantaneous Provisional Stream Gage Readings.

	Jan	Feb	Mar	Apr	May	Jun
Black River (USGS 08405500 BR Above Malaga)						
Average Flow	7.53	6.37	6.90	5.15	5.64	2.78
Minimum Daily Average	6.04	2.61	3.77	3.86	0.83	0.00
Maximum Daily Average	9.72	9.43	9.17	7.23	8.64	10.9
Black River (USGS 08405400 Black River at Harkey Crossing)						
Average Flow	9.99	8.39	7.80	5.11	4.91	4.85
Minimum Daily Average	10.30	4.45	5.44	3.36	3.70	4.30
Maximum Daily Average	12.20	12.10	12.30	8.14	6.21	8.80
Black River (USGS 08405350 Black River Below Blue Springs)						
Average Flow	7.81	7.61	5.60	6.68	5.05	3.75
Minimum Daily Average	6.13	6.05	5.12	4.79	2.99	2.77
Maximum Daily Average	9.61	8.49	8.68	7.86	12.0	4.23
Delaware River (USGS 08408500 DR NR Red Bluff)						
Average Flow	N/A	N/A	N/A	N/A	N/A	N/A
Minimum Daily Average	N/A	N/A	N/A	N/A	N/A	N/A
Maximum Daily Average	N/A	N/A	N/A	N/A	N/A	N/A

Delaware River Discharge Monitoring

On October 10, 2022 the Delaware River near Red Bluff USGS gage was removed due to bridge construction that was occurring in the area. CEHMM physically monitored flows in the Delaware River every two weeks during the second quarter. Since mid-May 2023 the Delaware has ceased to flow and water levels have steadily dropped. CEHMM staff has ensured that no mussels or relics of mussels are present in newly exposed areas as water levels decrease. CEHMM will continue to monitor the status of the Delaware River by physical inspection throughout the year (Figure 3).

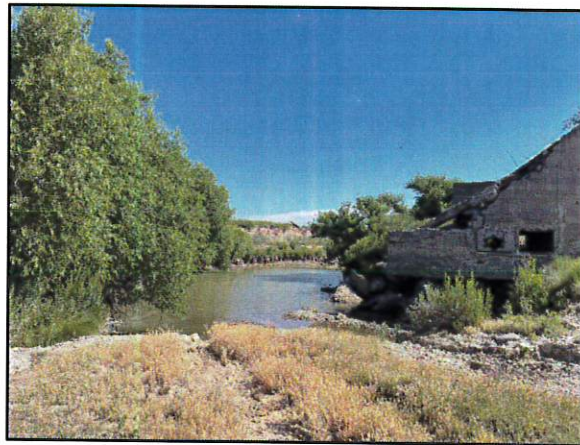


Figure 3. The Flows on the Delaware River on June 5, 2023.

V. Grants

CEHMM/SLO Instream Flow Program Initiative for the Texas Hornshell Mussel

In 2020, CEHMM and SLO partnered on a proposal to the National Fish and Wildlife Foundation (NFWF) for a grant to fund the development of an instream flow program to protect the endangered Texas hornshell mussel and other at-risk species in the Black and Delaware rivers. The NFWF awarded the grant in 2021. This funding requires an in-kind matching contribution from the CCA/A program, the Executive Committee set aside \$250,000.00 for the matching contribution. Some or all of the match can be provided through in-kind contributions from SLO and CEHMM, but the set-aside amount ensures the matching fund requirement is met. The overall objective of the initiative is to provide instream flow for the THM in the Black and Delaware rivers through the purchase or lease of water rights, or through alternative mechanisms such as forbearance agreements or strategies that make water available for instream flow during otherwise dry periods or when high flows are needed for life history requirements. The first expected outcome of the grant would be the execution of one or more short-term (3-5 year) agreements that, at a minimum, will provide sufficient flow in the Black River to prevent the existing THM population from being extirpated by lack of water while long-term solutions to instream flow are developed. The second expected outcome of the project will be the development of a framework for a long-term plan and budget for maintaining stream flows in the Black and Delaware rivers, including multiple options such as outright purchase of water rights, long-term forbearance agreements, or other mechanisms to reduce diversion from the rivers.

Progress: AMP Insights presented the final Instream Flow Initiative and Design for the Black River to the Instream Flow Working Group in quarter two of 2023. The Instream Flow Working Group was given a couple weeks to provide feedback or comments on the final design plan. The feedback from the Instream Flow Working Group has been incorporated and finalized.

Sensor Array Study

In 2021, CEHMM submitted a grant proposal to the NFWF to fund a Sensor Array Study to better understand in situ conditions experienced by the endangered THM in the Black River. The NFWF awarded the grant in June 2022. The Sensor Array grant was approved by the Implementation and Executive committees. This funding requires an in-kind matching contribution of \$24,784.30 from the CCA/A program. CEHMM proposed a project to establish a sensor array within the occupied reach of the Black River in southeastern New Mexico. The water quality data loggers will allow CEHMM to monitor and better understand the water quality conditions endured by the endangered THM. Through the establishment of the sensor arrays, CEHMM will be able to further monitor and gain data to determine if, when, and for what period of time the THM are enduring intolerable environmental conditions. The results of this data collection are expected to provide key insights into environmental gradients among microhabitats, especially as we prepare for further climate-driven variation.

Progress: CEHMM analyzed and compiled the data extracted from the loggers. This information will continue to be analyzed and compared with subsequent data to form a comprehensive picture of the water parameters THM are subjected to and note distinctions between occupied and unoccupied habitats. Data will be extracted from the loggers again during the third quarter of 2023.

Benjamin P. Duke Memorial Grant

In April 2022, CEHMM submitted a proposal to the Carlsbad Community Foundation for the Benjamin P. Duke Memorial Grant to fund the creation of environmental education exhibits. The Carlsbad Community Foundation awarded the grant in June of 2022. This funding requires an in-kind contribution from the CCA/A program for up to \$5,000. The environmental exhibits will address aquatic species of concern in the lower Pecos River Drainage, educating the public to foster knowledge and appreciation of the species, ultimately promoting the wellbeing of wildlife and their habitats.

Progress: CEHMM installed the framework for the three signs at Cottonwood Day-Use Area while the displays are in final development.



Figure 4. Installed Framework at Cottonwood Day-Use Area

Development of a Habitat Conservation Plan for THM

On November 14, 2022, CEHMM submitted a proposal to the NFWF to fund the development of a Habitat Conservation Plan (HCP) for the federally endangered THM in New Mexico and Texas. The HCP will further facilitate voluntary cooperation of oil and gas operators, solid minerals mining companies, water withdrawers, agriculture and ranching, researchers, and other interested stakeholders, thereby providing conservation benefits to THM. When fully implemented, it will provide guidance for the conservation and management of this species and its habitat by reducing or eliminating threats to the species. On March 27, 2023 CEHMM's

application for this grant was selected for funding for the full grant amount requested. This funding requires an in-kind matching contribution of \$25,000 from the CCA/A program.

Progress: CEHMM is working with NFWF to complete an amendment to get funding and contracts developed for the Habitat Conservation Plan for the THM. CEHMM hopes to complete contract amendments in quarter three of 2023.

VI. Project Updates

River Flow Regime Requirements Study

This study was approved and funded in October of 2020 for \$358,005.00. This project is ongoing and currently in its final year. The expected completion date of the project is August 2023. A collaborative team of researchers from Miami, Texas A&M, and Auburn universities are conducting a series of laboratory experiments and field monitoring studies to examine lethal and sublethal effects of thermal and hypoxia stress on various life history stages of the Texas hornshell. Relationships between flow, temperature, and dissolved oxygen in the Black River are also being studied. Results will be used to identify flow regimes most likely to induce mortality and/or thermal stress in the Texas hornshell. Combined with historical datasets, results will be used by both CEHMM and the Service. CEHMM will determine whether frequency of stressful periods has been increasing over time, and the Service will make specific flow recommendations for Texas hornshell populations in the Black River.

Progress: CEHMM and NMDGF assisted Charles Randklev of Texas A&M in collecting three gravid THM in June 2023. Glochidia extracted from two of these mussels were successfully inoculated into stoneroller fish to produce juvenile THM that will be utilized in this study. The remaining collected mussel was transported to Auburn University for further study.

Design and Implementation of a Population Monitoring Program for THM Study

This study was approved and funded on July 15, 2022 for the amount of \$149,987. This project is ongoing and currently in year one out of three. The expected completion date of the project is July 31, 2025. Miami University is conducting this study with the overall objective to develop methods for estimating the size of the THM populations in the Black River and employ these methods for long-term monitoring of this essential population of mussels. The results of these analyses will inform management activities that seek to secure the existing population in the Black River and allow tracking of the population trajectory over time.

Progress: CEHMM, alongside the NMDGF and the Shedd Aquarium, assisted Miami University in completing THM population surveys utilizing the identified most efficient methodology for surveying this species in the Black River. This involved setting up three transects at each of the twenty-



Figure 5. Taking Measurements of THM During Surveys.

one different sites along the Black River which were searched for the presence and abundance of THM by dive and snorkel survey teams. Additional high-intensity THM surveys will be conducted in September 2023 to further inform this project.

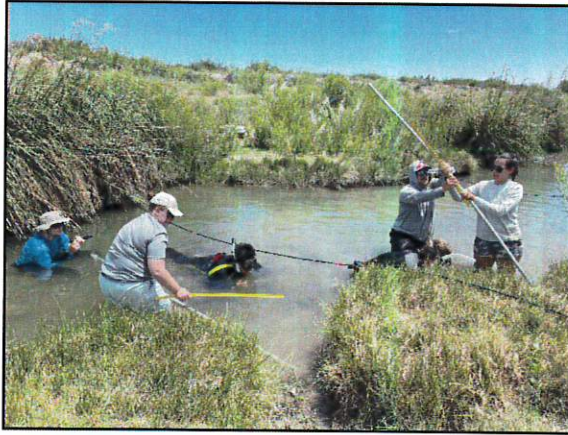


Figure 6. CEHMM Staff Assisting with THM Population Surveys.

Project Proposals

CEHMM and SLO are now accepting project proposals to fund projects related to research and monitoring, or habitat restoration for the THM and the Other Covered Species (Figure 7). Proposals are ranked and funded on a quarterly basis.



Figure 7. Before and After of Erosion Control Structures Used to Slow the Flow of Water and Catch Sediment.

VII. Meetings

Joint Executive Committee

The Joint Executive Committee did not meet during the second quarter of 2023. The Executive Committee members in 2023 are as follows:

- CEHMM CCAA: Chuck Hayes (Service) and Emily Wirth (CEHMM)
- CEHMM CCA: Chuck Hayes, Emily Wirth, Ty Allen (BLM)
- SLO CCAA: Chuck Hayes, Lisa Henne (SLO)

Implementation Committee

The Implementation Committee did not meet during the second quarter of 2023. The next Implementation Committee meeting is scheduled to take place on July 19, 2023. The Implementation Committee members in 2023 are as follows:

- Service: Sarah Yates, Tim Ludwick
- BLM: Cassie Brooks
- CEHMM: Matt Ramey
- SLO: Elaine Heltman (alternates Camilla Romero and Kyle Rose)
- NMDGF: Daniel Trujillo, Nathan Thompson

VIII. Outreach

In May 2023, CEHMM conducted a site tour of the Texas Hornshell CCA/A covered area for the SLO and the BLM. The tour consisted of various stops along the Black River depicting important habitats for the Texas Hornshell mussel and other covered species. This also served to provide insight regarding flow dynamics in the Black River.



Figure 8. BLM Presenting to Tour Participants at Ladder Hole Day-Use Area.

IX. Species Monitoring

In June 2023, CEHMM assisted Dr. Ivana Mali of North Carolina State University in conducting turtle surveys along the Delaware River and Pecos River. These surveys documented various turtle species with a primary focus on the Rio Grande River Cooter. CEHMM staff assisted in trapping, marking, documenting, and releasing captured turtles. These surveys will help to better inform Rio Grande River Cooter distribution in New Mexico.

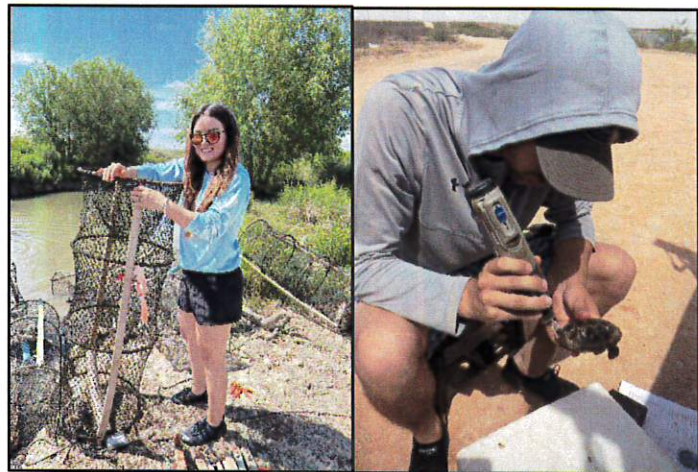


Figure 9. CEHMM Staff Setting Hoop Nets and Marking Captured Turtles

X. Compliance Monitoring

The CCA/As require CEHMM and SLO to submit an annual compliance verification to the Service for each enrolled Participant. CEHMM assists SLO with compliance verification through a Memorandum of Agreement for joint implementation of the CCAAs. In the second quarter of 2023, CEHMM's CCA/A compliance monitoring included inspection for failure to submit new surface disturbances and inspection for Spill Prevention, Control, and Countermeasures (SPCC) or Reasonable and Prudent Practices for Stabilization (RAPPS) compliance, if applicable. CEHMM utilized the New Mexico Oil Conservation Division (NMOCD) data, BLM right-of-way data, and field surveying to conduct inspections.

XI. Signature

If you have any questions, please call Matt Ramey at (575)-885-3700.

Signed: Emily K. Wirth

Emily K. Wirth
Executive Director

Date: 7/31/2023

Appendix A – Habitat Conservation Fees for The Calendar Year 2023

CCA Appendix E Fee Structure – Revised 2/1/2023 for Inflation

The Participant may be responsible for paying an Enrollment Fee for the first three years this CCA and CP are in effect. If the Participant opts out of the CCA, the Participant is still responsible for these fees. The Participant shall pay the \$30,000 Enrollment Fee for enrollment of facilities existing within the Covered Area if enrolling by the All Activities method of enrollment. The Participant may choose to enroll via the Parcel-by-Parcel method. In this case, the Participant shall pay a minimum Enrollment Fee of \$3,000 for up to 1,000 acres. For all acreage above 1,000 acres, the Participant shall pay \$3/acre. For either method of enrollment, the Participant shall make the first payment of Enrollment Fees at the time of enrollment. The Participant shall pay the second and third on the first and second anniversaries of the CCA effective date. If the Participant so chooses, the Participant may pay all three Enrollment Fees at the time of enrollment. Enrollment Fees will not be required after the initial three-year period.

The Habitat Conservation Fee for New Surface Disturbance associated with oil and gas development activities will be calculated using the following scales. The scales also apply to third parties doing work for the Participant either on or off the Participant’s Enrolled Lands, regardless of who constructs or operates the associated facilities. The Participant may prepay Habitat Conservation Fees at any time at their discretion. The Participant must notify CEHMM prior to conducting any surface disturbing activities associated with this CP on or off the Enrolled Lands either by the Participant or third-party subcontractors. Management zone of the New Surface Disturbance is determined by the location of the activity being developed, not actual habitat found on site.

All Habitat Conservation Fees will be adjusted once yearly by CEHMM to account for inflation or deflation. The term “Base Habitat Conservation Fee” shall refer to the values of the Habitat Conservation Fees set forth in this Exhibit. For purposes of this section, the term “CPI-U” shall refer to the Consumer Price Index for All Urban Consumers, U.S. City Average, all items less food and energy (base 1982-84=100), not seasonally adjusted, as published by the U.S. Department of Labor, Bureau of Labor Statistics. The Maximum Annual Inflation Increase shall be based on the percent increase between the annual average CPI-U for the calendar year that precedes the date of the adjustment (“Current CPI-U”) and the annual average CPI-U for calendar year 2016 (“Base CPI-U”). The Maximum Annual Inflation Increase shall be calculated as follows:

$$\text{Maximum Annual Inflation Increase} = \text{Base Habitat Conservation Fee} \times \left(\frac{\text{Current CPI-U} - \text{Base CPI-U}}{\text{Base CPI-U}} \right)$$

Increases, if any, shall occur on the January release date of the CPI-U. The Maximum Annual Inflation Increase will reflect the most recent revision to the annual average Current CPI-U, if any. CEHMM will send Participants a notification, both electronically and by mail, each year at the time the fees are adjusted.

If the annual average CPI-U is unavailable for a calendar year, no increases will be made. If the CPI-U is discontinued entirely or unavailable for a period longer than two calendar years, CEHMM will consult with the Participant to select an appropriate alternative index.

1) New Well Location Fees¹

<u>Management Zone</u>	<u>Conservation Fee</u>
Zone A	Not applicable
Zone B	\$23,759.73/location
Zone C	\$11,879.86/location
Zone D	\$2,969.96/location

¹ Includes a single well pad no larger than 3 acres, multi-well pad no larger than 5 acres, and associated access road not to exceed 1 acre. Anything larger will be considered New Surface Development Fees described below. If any portion of the project falls into a higher management zone, the charge incurred will be that of the higher management zone.

2) New Surface Development Fees

For other New Surface Disturbances associated with Enrolled Lands, but not directly attributable to a new well pad² and associated road, including but not limited to pipelines, frac ponds, electric lines, pits, etc. the Habitat Conservation Fee will be based on the following scale:

<u>Management Zone</u>	<u>Conservation Fee³</u>
Zone A	Not applicable
Zone B	\$8,909.90/acre
Zone C	\$2,969.96/acre
Zone D	\$1,187.99/acre

² Co-located wells that require an increase in the size of the existing pad will be assessed by new acres disturbed.

³ These Conservation Fees are based on the following figures. No additional amounts are owed beyond the amount of the Conservation Fees:

- Lease of Water Rights.....10-acre feet = \$5,000-\$10,000
- Purchase of Water Rights.....1-acre foot = \$5,500-\$10,000
- Habitat Restoration (i.e., salt cedar treatment)4 acres = \$10,000
- Caliche Removal.....2-3 acres = \$10,000
- Reseeding.....1 acre = \$1,000
- Rebuilding Water Crossings.....Undeterminable at this time

Note: All acreage calculations will be rounded up to the next whole acre, if over 0.5 acres.

New operations on previously disturbed land (e.g., co-located new well on an existing pad or new pipeline in an existing corridor, etc.) will incur no additional Habitat Conservation Fee, unless the area to be re-disturbed has been reseeded and/or reclaimed as part of reclamation. Fees will also be assessed for any new acreage disturbed.

CEHMM will calculate areas of New Surface Disturbances based on information received and/or on-the-ground observations. Should the Participant disagree with CEHMM’s calculation of the area of New Surface Disturbance, the Participant has the right to challenge the estimate, provide supporting data, and meet with CEHMM and/or the FWS, if necessary. CEHMM and the FWS, if participating, will have the responsibility for the final determination of the area of New Surface Disturbance.

The Habitat Conservation Fee for above-ground powerlines will be calculated using the above scale for New Surface Development. The acreage of New Surface Disturbance will be based on information found in the OCD and SLO New Surface Disturbance activities approval document provided by the Participant to CEHMM.

If New Surface Disturbance falls within two or more management zones, the amount of the Habitat Conservation Fee will reflect the amount of the New Surface Disturbance within each management zone.

3) Fees Associated with New Seismic Data Acquisition

<u>Management Zone</u>	<u>3D Survey Conservation Fee</u>	<u>2D Survey Conservation Fee</u>
Zone A	\$ <u>11.89</u> /acre	\$ <u>237.59</u> /linear mile*
Zone B	\$ <u>8.91</u> /acre	\$ <u>178.20</u> /linear mile*
Zone C	\$ <u>5.94</u> /acre	\$ <u>118.80</u> /linear mile*
Zone D	\$ <u>1.79</u> /acre	\$ <u>29.71</u> /linear mile*
		*or any fraction thereof

The acquisition of seismic data on enrolled parcels may also disturb the surface of other land not enrolled in this CP. The Habitat Conservation Fee calculated for seismic activity includes disturbances occurring on both enrolled and non-enrolled land.

Routine Production Operations

Routine production operations are not considered New Surface Disturbance and will not create the obligations to pay a Habitat Conservation Fee. Routine production operations are those which do not require an agency permit or approval, and those operations that require an agency approval but do not disturb the surface.

Appendix B – USGS Discharge Gages in the CCA/A Boundary

