

Middle Rio Grande Endangered Species Act Collaborative Program Science Work Group Meeting

15 February 2011 Meeting – 9:00 AM-11:30 AM

Interstate Stream Commission

Actions

- Stacey Kopitsch will send the current water quality summary to the ScW for review. ScW members interested in working on the SOW for the water quality project should contact Stacey.
- Stacey Kopitsch will ask Monika Mann (PMT liaison to DBMS) if the DBMS can provide a list of all references they have for water quality data.

Decision

- The ScW approved the 12/14/10 Joint ScW/MPT/HRW meeting minutes for finalization.

Meeting Summary

Introductions and Agenda Approval – Stacey Kopitsch, acting federal Co-chair for Jeanne Dye, brought the meeting to order and introductions were made. Discussion on the USGS Progress Summary and water quality summary were moved to the beginning of the agenda.

USGS Progress Summary Conference Call with Kevin Buhl - The ScW had received a progress summary on the estrogenic biomarker study that sparked discussion on the background and original intent of the project. Meeting attendees were joined by Kevin Buhl and Diana Papoulias from USGS for a conference call to discuss the background of the study. The USGS estrogenic biomarker project came about from the results of a study by the New Mexico Environment Department with collaboration from the Environmental Protection Agency that found estrogenic compounds in effluents from several of the waste water treatment plants in the Middle Rio Grande. The purpose of phase 1 of the estrogenic biomarker study was to measure how well vitellogenin, a biomarker for measuring estrogenic exposure in Fathead minnows and other fish species, would measure exposure in Rio Grande silvery minnow (silvery minnow). Normally only mature female fish produce vitellogenin but male and juvenile fish that are exposed to estrogen will also produce it. Initial results show significant amounts of vitellogenin in the tissues of adult male and juvenile silvery minnows exposed to an estrogen active compound; this indicates that vitellogenin is a good biomarker for estrogenic compounds in silvery minnow. In phase 2 of the project silvery minnow will be exposed to waste water treatment effluents in the Middle Rio Grande to measure estrogenicity; phase 2 is hoped to be completed in late summer and early fall. An additional phase to the project could be to see if there is any impairment of reproduction in silvery minnow from exposure to estrogenic compounds in the effluents.

Though the effects of estrogenic compounds on silvery minnow are important for management actions the proposal for this project does not clearly indicate the objectives of the study. After it has been established that estrogenic compounds are a problem for the silvery minnow in the Middle Rio Grande a suggested next step was to work to improve water quality standards and work with waste water treatment plants and cities to bring estrogenic compound levels down.

Water Quality Summary – Meeting attendees looked at the revised water quality project summary. The summary was updated to address Coordination Committee (CC) requests that the objective of the project be further clarified and that the project focus more on the evaluation of water quality data instead of just the compilation. Attendees found that reports still need to be added to the reference section of the summary and that some of the references need to be updated. Stacey Kopitsch will send the current water quality summary to the ScW for review. ScW members interested in working on the SOW for the water quality project should contact Stacey. The water quality project is meant to deal with the fact that there is

a lot of water quality data available through various projects but some of it has never been pulled together for use. The Database Management System (DBMS) has been collecting all water quality data that people have submitted for inclusion in the database so this will be a good starting point for data collection. The DBMS workgroup may be able to give a list of all the references they have to date that include water quality data. Stacey Kopitsch will ask Monika Mann (PMT liaison to DBMS) if the DBMS can provide a list of all references they have for water quality data.

Approve 1/18/11 ScW Meeting Minutes – Approval of the January 18, 2011 ScW meeting minutes was tabled so that some additional changes that were submitted could be incorporated.

Approve 12/14/10 Joint ScW/MPT/HRW Meeting Minutes – The ScW approved the 12/14/10 Joint ScW/MPT/HRW meeting minutes for finalization.

Action Item Review – All January action items were completed.

Interim ScW Federal Co-chair – It was announced that Jeanne Dye will need to temporarily step down as the ScW federal Co-chair. The U.S. Fish and Wildlife Service is next in the rotation for federal Co-chair and Jen Bachus has volunteered to act as Co-chair until Jeanne is able to return to the position. Jeanne will continue to attend ScW meetings and participate in the work group to the extent that she is capable. Alison Hutson is the non-federal Co-chair and should be returning in the next couple months.

Program update – Meeting attendees were updated that the CC approved the second year option for the SWCA Gear Evaluation study. In March, ASIR will be presenting preliminary results from the Age and Growth study; if the draft report is available before the March meeting it will be sent out as a read ahead. The Executive Committee (EC) will be meeting on Thursday, February 17th. The CC had a working meeting February 9th where the EMP and the draft low intensity monitoring report were discussed. The draft low intensity monitoring report is expected to be available in about a month.

Adaptive Management Update – At the beginning of February there was a 3 day planning session for adaptive management. The contractors have requested feedback to make a document that lists Program questions or uncertainties. The document and the draft adaptive management plan were sent out to the workgroup. Any comments should be sent to Stacey Kopitsch or any agency comments can be sent directly to Yvette McKenna. Meeting attendees discussed that past symposiums on the state of the science were very valuable and is something they would like to have repeated. It was shared that the University of New Mexico might be planning a symposium on the middle Rio Grande.

Next ScW Meeting March 15, 2011 from 9:00 am to 11:30 am at Interstate Stream Commission

Middle Rio Grande Endangered Species Act Collaborative Program Science Work Group Meeting

15 February 2011 Meeting – 9:00 AM-11:30 AM

Interstate Stream Commission

Meeting Minutes

Introductions and Agenda Approval

- Stacey Kopitsch, acting federal Co-chair for Jeanne Dye, brought the meeting to order and introductions were made.
- Discussion on the USGS Progress Summary and water quality summary were moved to the beginning of the agenda.

USGS Progress Summary Conference Call with Kevin Buhl and Diana Papoulias

- The Science Workgroup (ScW) had received a progress summary on the estrogenic biomarker study that sparked discussion on the background and original intent of the project. Meeting attendees were joined by Kevin Buhl and Diana Papoulias from USGS for a conference call to discuss the background of the study.
 - The USGS estrogenic biomarker project came about from the results of a study by the New Mexico Environment Department (NMED) with collaboration from the Environmental Protection Agency (EPA) that found estrogenic compounds in effluents from several of the waste water treatment plants that discharge to the Middle Rio Grande.
- The purpose of phase 1 of the estrogenic biomarker study was to measure how well vitellogenin would measure exposure in Rio Grande silvery minnow (silvery minnow). It was explained that normally only mature female fish produce vitellogenin but male and juvenile fish that are exposed to estrogen will also produce it.
 - In phase 1, 1-year old adult male and 22-week-old juvenile silvery minnows were exposed to an estrogen active compound. The livers of the adult males and the whole bodies of the juvenile fish were examined for vitellogenin, a biomarker for measuring estrogenic exposure in Fathead minnows and other fish species. Initial results show significant amounts of vitellogenin in the tissues of adult male and juvenile silvery minnows exposed to the estrogen active compound; this indicates that vitellogenin is a good biomarker for estrogenic compounds in silvery minnow. Blood from the adult males will also be analyzed for sex steroids and the fish bodies will undergo histologic work.
- In phase 2 of the project caged silvery minnow will be exposed to waste water treatment effluents in the Middle Rio Grande to measure estrogenicity; phase 2 is hoped to be completed in late summer and early fall with the results becoming available a couple months after the exposures. USGS also plans on using analytical chemistry and passive samplers to look at concentrations in the water.
 - Currently the plans are for the juvenile fish to be exposed to the effluents; not only do the juvenile fish survive better than the adults in laboratory conditions but they will be easier to work with from a logistics standpoint because of their smaller cages. When the adult results are completed the decision can be made if using juveniles will be most appropriate.
 - An additional phase to the project could be to see if there is any impairment of reproduction in silvery minnow from exposure to estrogenic compounds in the effluents.

- USGS will be looking for ovotestes in the silvery minnow from the second adult exposure that was conducted this summer. It would also be possible to look at the gonads of the juvenile fish to see if there is pathology in development of the gonads. Though it wasn't known exactly what stage of development the juvenile fish were in, given the exposure time frame it's not likely that there was complete sex reversal as sexual differentiation in minnow generally occurs earlier than the age of these fish that were exposed.
- During phase 1, silvery minnows were exposed to estrogenic concentrations of 1, 5, and 25 nanograms per liter. A concentration of 1 nanogram per liter is considered to be more environmentally relevant. Exposure at 5 and 25 nanograms per liter were considered to be extreme in respect to environmental relevance but they were measured to elicit and determine a range of responses in silvery minnow.
 - It was said that estradiol has not yet been detected in the middle Rio Grande using a detection limit of 10 ng/L. However, it has been found in other systems at lower levels than 10 ng/L – e.g., ranges of 1 to 13 nanograms per liter. It was also pointed out that many chemicals adhere to the sediment and are not found in the water column. NMED has found other estrogenic compounds in the middle Rio Grande.
- Diana plans to look at the kidneys of the juvenile silvery minnow because animals producing this much vitellogenin at that stage and size are likely having problems metabolizing and eliminating it. What's been seen in other studies is that vitellogenin will accumulate and clog the kidneys.
- It was suggested that since this study is informative for state water quality standards that the NMED or the health department be involved.
 - The process for getting the NMED involved would include providing data that indicates there is a problem and then updated standards and processes can be adopted. It was said that the importance of the biomarker study is that it indicates response to estrogenic compounds in silvery minnow that can now be measured in silvery minnow in the middle Rio Grande.
 - The study is also significant because fish at this early of a stage of life are most vulnerable to the stressors in the environment and the study indicates that the silvery minnow potentially have to deal with yet another stressor. It's also not known how long-term chronic exposures are going to affect the success of the young fish. It should also be determined how to weigh the exposures relative to other stressors, especially those that have important effects on the endocrine system.
- It was shared that in a “value added” study for this project a university student will be exposing silvery minnows and other species to compare the relative sensitivity of these fish to estrogenic compounds.
- It was pointed out that since there will be a mixture of multiple estrogenic compounds in the effluents (i.e. naturally produced estrogen, EE2, phytoestrogens, etc.) it might not be possible to pinpoint if a specific compound is producing effects.
- Meeting attendees then discussed the objectives of the biomarker study as they were not clearly stated in the SOW put forward by Science when this project was originally proposed.
 - They discussed that estrogenic compounds are a potent toxin that are found routinely in river systems including the middle Rio Grande, these compounds affect water quality, and information from this study could be used for management action.

- Having clear objectives described up front in all SOWs that Science develops will help show the thought process going into each study and the linkage in steps to a specific management action.
- It was discussed that at several Program meetings some agencies have expressed that addressing water quality issues was not a priority for their agency.
 - It was said that the Mike Marcus Risk Assessment on water quality in the middle Rio Grande did not find impairments in the water quality based on what was analyzed.
 - It was pointed out that there are thousands of chemicals in the middle Rio Grande with only a few of them having standards. It was commented that there needs to be additional research to see what the standards for those chemicals should be.
 - It was also pointed out that the Mike Marcus Risk Assessment found chemicals in the sediment and had indicated ways to move forward.
 - Joel Lusk offered to present the results of the Service's study regarding chemicals found in fish tissue at a future ScW meeting.
 - It is assumed that ISC would probably recognize that water quality metrics are ongoing and fluctuating; however, this is not an official agency response.
- After it has been established that estrogenic compounds are a problem for the silvery minnow in the Middle Rio Grande a suggested next step was to work to improve water quality standards and work with waste water treatment plants and cities to bring estrogenic compound levels down.
 - Sampling across species would help to understand the overall effects on the fish community in the Rio Grande and how that affects the silvery minnow.
 - It was shared that water quality sampling in the acequias are finding prescription medications at these sampling sites. The City of Albuquerque, Service, and pharmaceutical companies have given information to the public for properly disposing of chemicals; this may be the best way to address the issue because the chemicals will not be able to be treated without huge treatment plant upgrades.
 - A water quality study funded by the Service also shows that contributions from septic tanks may also be a concern.
 - It is expected there will be an increasing trend seen with input of estrogenic compounds from municipal sources.
- It was discussed that the biomarker study is fully funded but it is not known if the USGS will be able to continue the study without delay (any delays might require additional funding). It was also pointed out that the USGS internal review process is lengthy as is a peer review process; this has been an issue with other projects.
 - Jericho Lewis explained that while all federal agencies should be in compliance with contracts, he is only able to promote (not enforce) compliance. It was suggested that the workgroups determine if these studies are something that could be done through the commercial market which would provide Reclamation's contracting office more authority for enforcing compliance.

Water Quality Summary

- Meeting attendees reviewed the revised water quality project summary. The summary was updated to address Coordination Committee (CC) requests that the objective of the project be

further clarified and that the project focus more on the evaluation of water quality data instead of just the compilation of existing information.

- The Abeyta and Lusk report as well as the Vanhorn collection effort should be added to the summary as references. The Vanhorn final report addresses the oxygen and temperature issues that are still ongoing.
- The reference for the Mike Marcus study also needs to be updated as it has now been published in a scientific journal.

Action: Stacey Kopitsch will send the current water quality summary to the ScW for further review.

- Attendees discussed the SOW for the project. When this project was first developed, there were discussions about the many projects that collect water quality data but all that available information has never been compiled for informed use. Part of the intent of this project was to address this need.
 - It was recommended that the first task of this SOW should be to “consolidate and evaluate existing water quality data”
 - Work group members interested in working on the water quality project SOW development should contact Stacey Kopitsch. Cyndie Abeyta volunteered her assistance.
- The Database Management System (DBMS) has been collecting available water quality data for inclusion in the database. It was recommended the DBMS group be contacted for a list of all the relevant references already collected.
 - It was suggested that both the USGS and EPA should have more water quality studies as well. Members briefly discussed that there could be other, not so obvious studies, that take aspects of water quality into consideration.

Action: Stacey Kopitsch will ask Monika Mann (PMT liaison to DBMS) if the DBMS can provide a list of all references they have for water quality data.

Approve 1/17/11 ScW Meeting Minutes

- Approval of the January 18, 2011 ScW meeting minutes was tabled so that some additional changes that were submitted could be incorporated.

Approve 12/14/10 Joint ScW/MPT/HRW Meeting Minutes

- The ScW approved the 12/14/10 Joint ScW/MPT/HRW meeting minutes for finalization.

Action Item Review

- Meeting attendees performed an action item review; all January action items were completed.
- Stacey Kopitsch will send out the project summaries for the Evaluate Water Quality in the MRG in Relation to the RGSM, Increase Understanding of RGSM Life History and Habitat Needs – Spawning/Nursery Habitat and Physical Habitat Characteristics, and RGSM Fecundity Study projects that were approved by the CC pending funding. Groups of people are needed to write SOWs for these projects. Joel Lusk volunteered to work on the SOW for the RGSM Fecundity Study.

Interim ScW Federal Co-chair

- It was announced that Jeanne Dye will need to temporarily step down as the ScW federal Co-chair. The U.S. Fish and Wildlife Service is next in the rotation for federal Co-chair and Jen Bachus has volunteered to act as Co-chair until Jeanne is able to return to the position. Jeanne will continue to attend ScW meetings and participate in the work group to the extent that she is capable.
- Alison Hutson is the non-federal Co-chair and should be returning in the next couple months.

Program update

- Meeting attendees were updated that the CC approved the second year option for the SWCA Gear Evaluation study.
- In March, ASIR will be presenting preliminary results from the Age and Growth study; if the draft report is available before the March meeting it will be sent out as a read ahead.
- **EC update**
 - The Executive Committee (EC) will be meeting on Thursday, February 17th.
- **CC update**
 - The CC had a working meeting February 9th where the EMP and the draft low intensity monitoring report were discussed. The draft low intensity monitoring report is expected to be available in about a month.

Adaptive Management Update

- At the beginning of February there was a 3 day planning session for adaptive management. The contractors have requested feedback to make a document that lists Program questions or uncertainties. The document and the draft adaptive management plan were sent out to the workgroup. Any comments should be sent to Stacey Kopitsch or any agency comments can be sent directly to Yvette McKenna.
- It was commented that it's not known if propagation facility reports, egg salvage reports, and egg monitoring reports are available on the website.
 - In the absence of a Program administrative assistant Jericho Lewis and Yvette McKenna have been working to keep the website updated. A module for Captive Propagation was created but it has not yet been populated with associated reports and documents. In March there should be a new administrative assistant to the Program.
- It was commented that it would be good to have a science symposium for a good exchange between scientists in different groups. The last science symposium that the Program had was in 2006 or 2007.
 - Meeting attendees discussed that past symposiums on the state of the science were very valuable and is something they would like to have repeated.
 - This is something that Stacey will bring up to the PMT.
 - Two years ago there was a "state of the science" symposium on the silvery minnow and there has been discussion on having one for the Southwestern Willow Flycatcher.
 - It was shared that the University of New Mexico might be planning a symposium on the middle Rio Grande.

Next ScW Meeting March 15, 2011 from 9:00 am to 11:30 am at Interstate Stream Commission

**Science Work Group
15 February 2011 Meeting Attendees**

NAME	AFFILIATION	PHONE NUMBER	EMAIL ADDRESS
Joel Lusk	FWS	761-4709	joel_lusk@fws.gov
Stacey Kopitsch	FWS	761-4737	stacey_kopitsch@FWS.gov
Jen Bachus	FWS	761-4714	jennifer_bachus@fws.gov
Cyndie Abeyta	FWS	761-4738	Cyndie_abeyta@fws.gov
Dana Price	USACE	342-3378	Dana.m.price@usace.army.mil
Andrew Monie	NMDGF	476-8105	Andrew.monie@state.nm.us
Jericho E. Lewis	Reclamation	462-3622	jlewis@usbr.gov
Rick Billings	ABCWUA	796-2527	rbillings@abcwua.org
Mark Brennan	FWS	761-4756	Mark_brennan@fws.gov
Douglas Tave	NMISC	841-5202	Douglas.tave@sta.nm.us
Michael Porter	COE	342-3264	Michael.d.porter@usace.army.mil
Yvette Paroz	Reclamation	462-3581	yparoz@usbr.gov
Kevin Buhl via phone	USGS		kevin_buhl@usgs.gov
Diane Papoulias via phone	USGS		dpapoulias@usgs.gov
Rebecca Christy	GenQuest	459-9671	rchristyromero@hotmail.com
Christine Sanchez	Tetra Tech	881-3188 x. 139	christine.sanchez@tetrattech.com