

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)  
SURFACE WATER QUALITY MONITORING GUIDANCE  
ADVISORY WORK GROUP  
June 9, 2009**

**SUMMARY**

**General Welcome and Staff Introductions**  
Kelly Keel/Chip Morris

Kelly Keel, director of the Water Quality Planning Division opened the meeting with a welcome to all attendees and gave a brief description of the Water Quality Planning Division (WQPD) that was formed in September 2008. The goal of the division is to bring together programs within the TCEQ in such a way as to offer an opportunity for a comprehensive approach to water quality assessment, protection, and improvement of Texas surface water resources. The coordinated work of the Planning and Implementation Section, the Monitoring and Assessment Section, and the Houston lab provide a scope of business that builds partnership with river authorities, stakeholder groups, and other interested parties.

Chip Morris with the TMDL Team was introduced as the meeting moderator. He explained that this is an advisory group and any ideas were to be openly shared, considered and respected. The structure of the meeting and the protocol to be followed during the speakers' presentations was explained, as well as the procedures to follow in the event of an emergency situation.

**Overview and Purpose of the Meeting**  
Laurie Curra

Laurie Curra, section manager of the Monitoring and Assessment Section explained that the business of the section is focused on the coordinated work of the Integrated Report revisions to the Water Quality Standards (WQS) and the Clean River Program

The purpose of this meeting is to discuss the methodology to be used in preparing the 2010 Integrated Report as required by EPA in compliance with Sections 305(b) of the Federal Clean Water Act. A draft report is due to EPA by April 2010. The report is being prepared concurrently with the revisions of the WQS. The 2010 Integrated Report will be prepared using the existing WQS and the existing assessment tools. The current Standards will be used with the existing tools for this assessment. This meeting of the Surface Water Quality Monitoring Guidance Advisory Work group is a first of meetings to be held to provide an exchange of ideas to provide transparency amongst all whose business and interests are to identify the quality of the water and ultimately to direct resources to real problems and be able to develop effective remedial measures and protect the water quality of the state.

## 2008 Assessment Summary and 2010 Assessment Goals

Andrew Sullivan

The following presentations are available on the website

<http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/swqmgawg.html>

The presentation *2008 Assessment Summary* given by Andrew Sullivan, team lead of Surface Water Quality Monitoring (SWQM) Team, provided the timeline for the 2010 effort, examples of formats within the report, the 2008 assessment summary, and a compilation of the assessment results for 2008. An assessment of groundwater conducted by the Texas Groundwater Conservation Protection Committee and the Beach Watch Program implemented by the General Land Office were also included in the 2008 assessment.

The upcoming assessment is likely to increase the water bodies assessed by approximately 30%. This is due to the enhancement of tools used for the assessment and the fact that the assessment in 2008 was targeted towards only classified segments. SWQM staff was introduced and individuals stated their assigned basins.

*Question:* The public comment period is scheduled during holiday time. When is the 2010 final draft due?

*Answer:* The final draft is due April 1, 2010 and a timeline for the 2010 Integrated Report is available on the website

<http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/swqmgawg.html>

### Metals in Water

Christine Kolbe

During the 2008 assessment, a number of impairments related to metals in water were identified in several east Texas water bodies. These impairments were not supported by other metals in water data. Upon further investigation, it was determined that the available data had been collected using two different types of clean metal kits with filtration equipment that appeared to produce different results. Both kit types were consistent with EPA Method 1669. The potential listings for metals in water were deferred pending further investigation by TCEQ and EPA. For the 2010 assessment all metals in water data available will be considered. Water bodies with impairments will be evaluated on a case-by-case basis and if necessary will be deferred from listing until additional data are collected using the more common filtration equipment. For several listings deferred in 2008, samples are being collected by Lower Neches Valley Authority and Angelina Neches River Authority using the more common filtration equipment with sample analysis provided by the TCEQ Houston Laboratory. Data collection will be completed in November 2009 and available for the 2010 assessment.

*Question:* What in the difference of the design of the kits produced different results?

*Answer:* The cause has been inconclusive; however, the design of the filters was closely examined.

*Question:* Why was the TCEQ kit chosen for the additional sampling?

*Answer:* The TCEQ kit contains the most widely used filters nationally. These filters have been the basis for most of the historic data collected, and to some extent used in the development of water quality criteria.

## **Statistical Methods**

Steven Earnest

During the 2008 Surface Water Quality Monitoring Guidance Advisory Work group, stakeholders and the TCEQ agreed to continue the current statistical practice of employing the binomial method for determining impairments. Stakeholders had expressed an interest in considering the magnitude of exceedances using confidence intervals around a percentile. TCEQ provided a demonstration assessment using this alternate method. Due to the variability of sample results in the data sets, the demonstration resulted in a large percentage of water bodies as having concerns for water quality. The overwhelming majority rejected the change due to the demonstrated outcome, complexity of the analysis, and the difficulty for stakeholders to reproduce the results. TCEQ then agreed to convene a subgroup to further discuss potential means to consider degree of magnitude of exceedances for 2010. Due to deployment of new tools and resource constraints, this endeavor has been postponed until 2012 and the 2010 assessment will be completed using the binomial method as in the past.

*Question:* How are CWQMN data used in terms of the binomial for the assessment?

*Answer:* Summary statistics are used and they are reported separately from other samples.

*Question:* How are probabilistic data used in the assessment?

*Answer:* Beginning in the 2012 assessment, probabilistic data will be grouped by broader category such as water body type, ecoregion, and stream order. Summary statistics will be reported by category rather than individual segment.

*Question:* Does impairment generally match with ecological assessments?

*Answer:* It was suggested that magnitude would help with assessing ecological impacts.

*Question:* Can Type II error be provided for delisting?

*Answer:* Approximations are listed in Appendices of the Assessment Guidance.

The group was asked who would be interested in participating in a statistics work group to be formed in order to discuss improvements to the current procedures. The names put forth were:

Pat Radloff, TPWD

Donna Long, TSSWCB

Linda Broach, TCEQ Region 12

Diana Kocurek, Tischler/Kocurek

Mike Schaub, EPA-Region 6

Darren Harmel, ARS

Chris Pasch, Alan Plummer Associates

Topics for the work group:  
Magnitude of exceedance  
Type I/Type II errors  
Continuous Monitoring  
Probabilistic Monitoring

## **Biological Assessment** Bill Harrison

When assessing a water body for which the ALU Category was established without bioassessments, the highest ALU category indicated by either the fish or benthic macroinvertebrates will be compared to the designated or presumed use, to determine support. In this scenario, if results for both assemblages indicate support of the designated or presumed use, the water body will be considered fully supporting. If results for an assemblage indicates non-support of the designated or presumed use, the water body will be identified as fully supporting, but with a concern, and an effort will be undertaken to properly define the ALU category for both assemblages for future assessments. If neither assemblage supports the designated or presumed use, the water body will be listed. This is consistent with findings in the least disturbed streams study sampling; that the ALU indicated by each assemblage may differ from the other, and reduce the possibility of inappropriately listing a water body as a result of natural inherent differences between the integrity of the fish and benthic assemblages.

When the ALU category was established based on an approved UAA including biological data, and the methods used in the UAA are current, the assessment should be consistent with the findings of the UAA for each assemblage. For example, if a high ALU category was established based primarily on fish, and the benthics IBI results were in an intermediate ALU category, then the fish will be assessed against the criterion for high ALU, and the benthics will be assessed against the criterion for intermediate ALU. This will reduce the likelihood of missing a source of impairment that is affecting primarily one of the assemblages, but not the other.

To assess attainment of the ALU category for an assessment unit (AU), the mean of a minimum of two samples collected from each of one or more representative sites within the AU will be used in conjunction with the ecoregion Coefficient of Variability (CV) for the designated ALU. All samples from all of the sites in the AU will be used to calculate the mean for that AU. If it is determined that a site is not a representative aquatic habitat in the AU, then results for bioassessments conducted at that site will not be included in the calculation of the mean. The highest ALU category included in the interval described about the mean by the CV will be used to determine attainment.

If separate samples from an assessment unit fall in different aquatic life use categories and the CV for the samples is greater than twice the ecoregion CV for the ALU category containing the mean then the water body will be identified as a concern, and additional

data collection will be scheduled. Identification of the water body as a concern will occur even if the mean indicates support of the designated use.

***Biological Assessments:***  
Assessing Multiple Samples from the Same AU

*Question:* Were samples collected during the critical period?

*Answer:* Samples were collected during the index period.

*Question:* When benthic and fish samples indicate different ALU categories for the same AU, what do you do in that case?

*Answer:* That is going to be covered in the presentation.

*Question:* If the CV is very wide and the mean does not support the use, what happens then?

*Answer:* In this case, more data would need to be collected before setting the use.

***Biological Assessments:***  
Aquatic Life Use Category Indicated by Fish and Benthics Differences

*Question:* What about past ALU designations that were based on statewide IBI calculations. Would that data be re-evaluated using the regionalized IBI.

*Answer:* If it was a listing, then yes, we would need to re-evaluate the original listing based on the new methods.

*Question:* How often does a biological impairment correlate with a water chemistry impairment?

*Answer:* There has not been an in depth analysis of those occurrences, but the third-party review we just went through directed us toward that effort.

*Question:* What about when the inverse occurs such as when the DO looks bad, but the aquatic life looks fine?

*Answer:* We would pursue possibly establishing site specific DO criteria in those cases.

*Question:* What about when an ALU is impaired compared to natural habitat limitations?

*Answer:* The habitat is evaluated to determine if the possible impairment is based on habitat limitations.

*Question:* When a UAA is determined to be “high” for one assemblage, but different for another, will that be reflected in the standards?

*Answer:* The hope is that this will be reflected in Appendix D with different headings for fish, benthics, and DO.

*Question:* All the data that generated the IBIs were based on wadeable streams, so how is this used on large rivers?

*Answer:* Quite a bit of data also came from large rivers and we applied these methods to those water bodies as well.

There was an additional request to look at the \* in the Standards for seagrass to determine if there are any possible listing that could be derived from that provision.

*Question:* Are UAAs available on the website?

*Answer:* Not at this time. Note: These documents can be supplied to the public upon request.

### **Public Water Supply**

Christine Kolbe

Currently, TCEQ assesses both surface and finished drinking water sources. Surface water data is screened against human health TSWQS criteria for public water supplies (PWS). Finished drinking water sources are evaluated using data provided by the TCEQ's Water Supply Division. The data provided are also screened against secondary drinking water criteria, and drinking water maximum contaminant levels for organic and inorganic chemicals. TCEQ staff is proposing that the Texas Water Quality Inventory should focus on the status of surface water bodies as sources for drinking water and not the finished product. Since many water supplies blend water from both groundwater and surface water, it is difficult to associate the water produced by a PWS with a specific water source. We propose to continue to assess surface water data of PWSs using human health TSWQS to identify impairments, and TCEQ human health screening levels for alachlor, atrazine, MTBE, and perchlorate to identify concerns.

*Question:* Were surface and finished drinking water data combined in the assessment?

*Answer:* No. They were separate assessments.

*Question:* Was surface water sample results compared side by side with self reported sample results from PWS?

*Answer:* No. We only saw those from PWS that had issues and then it was difficult to make any type of comparison with surface water data.

### **Recreational Beach Assessment**

Michele Blair

The 2000 Beach Act requires that states, in cooperation with EPA, monitor for pathogens and pathogen indicators in coastal recreation water associated with public bathing beaches. The Act also requires public notification when the water quality standards for pathogens or pathogen indicators are exceeded. The General Land Office (GLO) coordinates the Texas Beach Watch Program (TBWP) for the state of Texas. Currently, the TBWP collects water samples from 163 stations along the Texas coast. The GLO contracts with universities, local governments, and laboratories, following strict quality assurance protocols, to collect sample weekly during the peak beach season from May through September and every other week from October through April. TCEQ proposes

including the TBWP information in the 303(d)/305(b) assessment in order to protect human health by identifying beaches with persistent advisories. Assessment would consist of the identification of the percentage of days under an advisory of the days sampled at each beach.

The proposed threshold for listing beaches could be 25%, the threshold for single sample exceedances for the criterion in the TSWQS.

*Question:* How does geometric mean figure in?

*Answer:* The reporting of the Recreational Beach advisories in the assessment is to provide advisory information for the public. A beach that exceeds 25% advisory of sampling days is considered “Not Supporting” for contract recreation. The geometric mean is not considered as part of this assessment.

*Question:* Why not use the geometric mean to back-up the advisory information? Would it be more scientific to use geometric mean data from NELAC labs rather than these beach advisories in the assessment?

*Answer:* Not all labs are NELAC certified. It is not uncommon to get “0” which affect geometric means.

*Question:* There is a concern with using non-NELAC data and the use of volunteer data for Beach Watch and using the data to list a water body as impaired.

*Answer:* There are many labs analyzing Beach Watch samples that are NELAC certified. Also, the Beach Watch Program is a voluntary program; however the data are not collected by volunteers. All Beach Watch data are collected under an approved QAPP. NELAC requirements prohibit us from using all of the raw data which is why we use the advisory information provided by GLO. This is similar to the advisory information used from the DSHS for fish consumption and oyster waters. Additionally, the lack of NELAC certification does not signify lack of data quality.

*Question:* Should sampling be increased to weekly throughout the year?

*Answer:* All high use beaches are sampled weekly during the peak beach season from May through September and every other week from October through April.

*Question:* Seasonality is not represented in this method of reporting. This seems to over represent days enterococcus bacteria is  $>104$  cfu/100 ml. TCEQ already assesses the contact recreation use of Corpus Christi Bay and the GLO the beach conditions. Why do we need another assessment of beaches?

*Answer:* Using the advisory days/sample days is a more conservative approach. The reporting of beach advisories by Beach Watch conveys availability of the beach for recreational use by the public and has no regulatory or remedial authority, which is the purpose of the 303(d) List.

*Question:* Acknowledged that the city had problems that contributed to the listing of Cole and Ropes Parks. She felt that since the beaches in Corpus are used year round that sampling should be increased to weekly all year and not just during the swim season. Samples were collected between two large storm water outfalls something the city has to

deal with, plus old infrastructure. Does GLO have other beach stations that were collected between storm water outfalls? Are there maps available that indicate the location of outfalls in relation to sampling sites used in these beach advisories? What % are on bay beaches?

*Answer:* There are maps maintained by the GLO at the website

<http://www/glo.state.tx.us/coastal/beachwatch/>

All high use beaches on the Texas coast are monitored.

### **Water Quality Standards Update**

Jim Davenport

After extensive coordination with the Water Quality Standards Advisory Work group, TCEQ is completing a draft markup of proposed revisions to the Texas Surface Water Quality Standards. Proposed revisions will be reviewed and presented at TCEQ Agenda to obtain approval to publish the proposals for public comment. Major proposed revisions to the standards include (1) updating toxic criteria to protect human health, (2) adding numerical nutrient criteria for about 100 large reservoirs, (3) revising standards for contact recreation, and (4) adding or revising numerous site-specific standards for individual water bodies. For the draft revisions to recreation standards, expanded categories of uses and criteria are being considered. Concurrently, comprehensive updates of the Standards Implementation Procedures have been developed. The draft 2010 assessment will be based on the current (2000) standards, but revised standards that would affect listings will be considered in wastewater permitting and TMDL action.

### **Summary and Other Assessment Topics**

Andrew Sullivan

A concern for submitting comments on these assessment topics in 10 days was stated as unrealistic. The comment period was moved to the end of June 2009.

Summary of proposals:

- Metals in Water – water bodies with impairments will be evaluated on a case-by-case basis and if necessary will be deferred from listing until additional data is collected
- Statistical – A statistical work group is forming to discuss improvements to the current procedures.
- Remove finished drinking water data from assessment
- Recreation beaches advisories received from the GLO will be included in the proposal
- Water Quality Standards are being drafted concurrently with this assessment. The existing standards will apply to this assessment

Challenges:

- First full assessment done for the State in 4 years
- This represents more data from more water bodies
- Concurrent timing with Standards

- Due to EPA 4/1/2010
- 4-5 months to review data
- implementing newer tools – SAS – GIS to be used by SWQM staff

#### Moving Forward

- need comments and input on guidance by 7/1/2009
- meeting materials are available on the website
- refining data by 6/30/2009
- data providers meetings should be scheduled 30 days before comments are due
- public comment 12/09

#### **Meeting Adjourned**

The work group was given until June 30 to provide TCEQ with any additional comments not submitted during the meeting. One comment was received by Pat Radloff of TPDW. It was as follows:

- 1) pg. 3-23 – In the new section entitled “Determining Aquatic Life Use Standards Attainment,” the language in the first paragraph of this section does not agree with the information that was presented at the stakeholder meeting. Our understanding is that both fish and benthic macroinvertebrates must not meet if a water body has a presumed use, but that a water body with established uses (which may be different for fish and benthics) will be listed if either the fish or the benthics does not meet their use.
- 2) In Table A.1 and subsequent tables, there are numerous misspellings of “exceedance.”

The language in the summary has been revised to clarify item 1 above. The Guidance has also been revised on page 3-23 to provide the same clarification. Item 2 above has also been corrected.