2015 Addendum 2 to Quality Assurance Project Plan

Long-Term Marine Waters Monitoring, Water Column Program

DEPARTMENT OF ECOLOGY
State of Washington

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Publication Information

Addendum

This addendum is on the Department of Ecology's website at
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This addendum is an addition to an original Quality Assurance Project Plan. It is not a correction (errata) to the original plan.

Data for this project will be available on Ecology's Environmental Information Management (EIM) website at www.ecy.wa.gov/eim/index.htm. For all reviewed and finalized data since 1999, the EIM study ID is: MarineWater.

Provisional data currently in collection status can be found under EIM study ID: MarineWater- 2. These transitional data have not yet been through a documented data review process.

Historical data are grouped into logical periods based on primary methods used for collection and analyses. These studies are: MarineWaterColumn1973-1989 and MarineWaterColumn1989-1998.

Activity Tracker code

Ecology's Activity Tracker code for this addendum is 01-800.

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Cover photo: Chehalis River entering Grays Harbor in Aberdeen. Photographed by Mya Keyzers.

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Addendum to Quality Assurance Project Plan

Long-Term Marine Waters Monitoring
Water Column Program

September 2015

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EAP: Environmental Assessment Program
SWRO: Southwest Regional Office
TMDL: Total Maximum Daily Load
WQP: Water Quality Program

3.0 Background

This document describes an additional sampling effort at two stations in Grays Harbor for Ecology's Long-Term Marine Flights Monitoring Program. It is an addendum to *Quality Assurance Monitoring Plan: Long-Term Marine Waters Monitoring, Water Column Program* (Bos, 2015). This sampling effort will cover 12 months, beginning in the summer of 2015 and ending in the summer of 2016.

The Department of Ecology's Southwest Regional Office, Industrial Section, of the Water Quality Program are currently assessing the impact of the industrial discharge from Cosmo Specialty Fiber's (CSF) facility on the receiving waterbody, Grays Harbor. The Grays Harbor Bacteria TMDL (approved in 2004) included a wasteload allocation for the Weyerhaeuser (Weyco) pulp mill in Cosmopolis. This facility closed in 2006 and then reopened as CSF in 2011, at which point it was permitted with discharge limits equal to the fecal coliform bacteria wasteload allocation. The allocation was calculated to meet the National Sanitation and Shellfish Program bacteria limits at the sanitary line. The western portion of Grays Harbor is conditionally approved for commercial shellfish harvest.

The original TMDL wasteload allocation (WLA) prescribed for Weyco was based on the geometric mean and 90th percentile values of 42,000 and 128,000 cfu/100 mL, respectively. When that limit is exceeded, it triggers a temporary closure of the commercial shellfish beds in Grays Harbor. After Weyco closed the facility in 2006 it was reopened by CSF in 2011 with the same permit requirements as Weyco.

In that time, the water quality standard for CSF's receiving water changed from a fecal coliform bacteria indicator to enterococci bacteria indicator. CSF is requesting an increase in their bacteria limit to allow more bacteria to be discharged before they use AKART to treat their discharge. CSF's position is that the fecal coliform bacteria in their effluent does not contain high levels of human pathogens because of the nature of their industrial process. Because of the new indicator, we have requested CSF to sample their effluent for enterococci in addition to fecal coliform to begin to collect some data that will help us determine if they are exceeding the enterococci limit.

The discharge concentrations must be compared to the receiving water concentration to determine if they are exceeding water quality criteria. Ecology's Water Quality Program, Southwest Regional Office, submitted a project request to the Environmental Assessment Program (EAP) for Fiscal Year 2016 to have the Marine Flight program collect marine water samples at their existing Grays Harbor stations. That project (with very limited sampling) was approved.

All required sections not mentioned in this addendum are discussed in the original Quality Assurance Monitoring Plan and referenced Standard Operating Procedures.

5.0 Organization and Schedule

The Marine Flights occur once per month for Grays Harbor and take place during daytime on a random tidal cycle (not targeted for a specific cycle stage). Sampling will occur each time stations GYS008 and GYS016 are visited. The total number of months for sampling will be 12, starting with the first sampling event to occur during the August marine flight.

5.6 Budget and funding

The following table describes the costs associated with the enterococcus and fecal coliform bacteria analysis by the Thurston County Lab.

Billed Activity	Cost per Activity	Number of Activities	Total Cost
EnteroAlert analysis ASTMD 6503	**27**	**48**	**$1,296.00**
Fecal coliform analysis SM 9222D	**27**	**48**	**$1,296.00**

7.1 Study design

7.1.1 Field measurements

The objective for this sampling effort is for EAP Marine Flight scientists to collect two surface grab sample of marine water during routine marine flights at existing monitoring stations GYS008 and GYS016, and convey those samples to the Thurston County water quality laboratory where they will be analyzed for their concentration of enterococci.

The lab results will be sent to the CSF permit manager in Southwest Regional Office's Industrial Section for analysis and comparison with CSF's data for enterococci in their discharge. It is understood that this sampling effort has its limitations, but there are no existing enterococci data for Grays Harbor and there are only very limited funds and capacity for bacteria sampling in Grays Harbor. The data will be used to obtain a very coarse estimate of enterococci concentrations in marine waters to help to determine if the enterococcus concentrations in CSF's discharge are severely impacting water quality.

The following protocol will be followed by EAP Marine Monitoring Unit scientists conducting the marine flight sampling for Grays Harbor.

1. EAP will notify the Thurston County Lab at least 1 day before sample collection so the lab can prepare materials for the analysis.
2. Upon arrival at station and in the course of collecting other data, staff will use sample bottles supplied by the lab to collect near-surface samples for fecal coliform and enterococcus following Ecology's established bacteria sampling protocols, found in *EAP092 - BEACH Program Bacteria Sampling*.

3. A duplicate sample will be collected at GYS008 and GYS016.
4. EAP will put collected samples on ice and label them properly at the time of collection.
5. Upon arrival back in Olympia, the marine flight staff will follow standard labeling and chain of custody practices and submit the bacteria samples, along with a completed lab analysis form, to the Thurston County Lab. Samples have a holding time of 24 hours.
6. Thurston County Lab will use the Enterolert Method ASTMD 6503 analysis to determine the sample's concentration of Enterococci and MF method SM 9222D to determine the sample's concentration of fecal coliform bacteria.
7. Thurston County Lab will email the analysis results to the Marine Flight scientist, the TMDL coordinator, and Southwest Regional Office's Industrial Section permit manager.

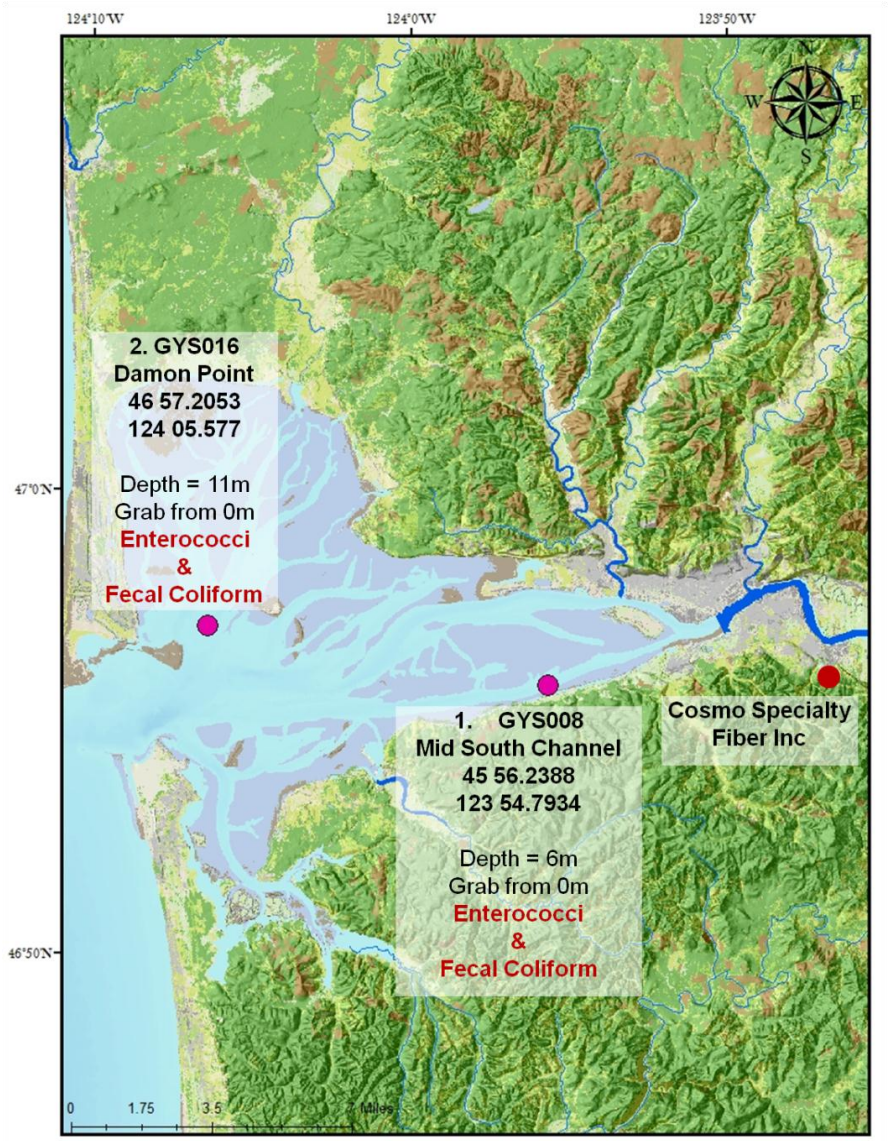

Figure 1. Locations of the 2015 Marine Flight 1 (MF1) Coast sampling stations.
Only the two Grays Harbor stations are considered in this addendum.

10.0 Quality Control (QC) Procedures

Sample collection will occur using *EAP025 - Seawater Sampling*. Standard sample handling and chain of custody methods will be followed.

A duplicate sequential field sample will be collected on every sampling event at both GYS008 and GYS016. The duplicate sample consists of the collection of an additional sample approximately 5 minutes after the initial collection at the station. This sample represents the total variability due to short-term, marine water dynamics, sample collection and processing, and laboratory analysis.

All samples will be analyzed by the Thurston County Lab, using the Enterolert method ASTMD 6503 and MF method SM 9222D.

12.0 Audits and Reports

The data report requirements are limited to the analysis results from the Thurston County Lab and any qualifications from Marine Monitoring staff regarding sampling conditions to help assess the data.

15.0 References

Bos, J., 2015. Quality Assurance Monitoring Plan: Long-Term Marine Waters Monitoring, Water Column Program. Washington State Department of Ecology, Olympia, WA. Publication No. 15-03-101. https://fortress.wa.gov/ecy/publications/SummaryPages/1503101.html

18.0 Appendix. Glossary, Acronyms, and Abbreviations

Glossary of General Terms

AKART: The identification, application/installation, and maintenance of applicable Best Management Practices from appropriate Stormwater Management Manuals constitutes the provision of "*all known, available, and reasonable methods of prevention, control, and treatment (AKART) for stormwater pollution".*