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# **Quality Assurance Project Plan**

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## **Permit Dive Monitoring**

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## Quality Assurance Project Plan

### Permit Dive Monitoring

Contract No. 53-0116-2-00486

This document is submitted to comply with **Section C.3 Quality Assurance Project Information**. Section C.3 states "The Contractor shall, prior to commencing operations, submit a written Quality Assurance Plan for each site addressing the following:

- a. Objectives for measurement data
- b. Sampling procedures
- c. Analytical procedures
- d. Data reduction, validation, and reporting
- e. Internal quality control checks
- f. Specific routine procedures used to assess data precision, accuracy, completeness, representativeness, and comparability.

#### Objectives for measurement data

Measurement data obtained from bark monitoring surveys will be used by the Tongass National Forest to meet the submittal requirements of the Environmental Protection Agency and the Alaska Department of Environmental Conservation. The measurement data collected will be reviewed by these agencies to determine if a specific site is currently within its allowable zone of deposit. The data will also be used to determine if the bark depth is in compliance with the requirements contained in the General Permit.

The objective for measurement data is collecting it with precision, and using approved repeatable methods. Data will be recorded as a permanent record in written and electronic formats along with subjective analyses of conditions present that may influence the degree of accuracy.

### **Sampling Procedures**

The contractor in performance of this survey will employ the approved sampling procedures found in contract No. 53-0116-2-00486. Those methods are located in C.2 **Bark Monitoring and Reporting, 3. Methods, c. (i), (ii), (iii), (iv), (v), (vi), (vii)** and are incorporated here by reference.

### **Analytical Procedures**

The analytical procedures used in determining the Zone Of Deposit, the area of Continuous Cover, and the area of Discontinuous Cover are described in contract No. 53-0116-2-00486 on pages 10, 11, 12, and 13. These methods will be used by the Contractor in determining the results of the data collected in the field survey.

### **Data reduction, validation, and reporting**

When its deemed appropriate, photographic data contained in the survey report will be reduced to representative samples. The guidelines for this reduction will be established between the contractor and the government on a case-by-case basis. Generally, the purpose and intent of data reduction is to mitigate duplication of similar representative samples. Each final report will be compare against the field notes to validate the data points. Every attempt will be made to disseminate the information in a succinct fashion. The report will be formatted and reproduced in a common hard copy and electronic form. The Contractor will specifically use the electronic file format Microsoft Word 2000 as outlined on page seven of the contract.

### **Internal quality control checks**

Each report undergoes a thorough editing process to ensure readability. Photographic representation and the data tables are compared with the narrative text of the report to ensure that it is clear and concise.

### **Specific routine procedures used to assess data precision, accuracy, completeness, representativeness, and comparability**

The processes used to ensure precision and accuracy along with completeness; representation and comparability are outlined below.

#### **a) Data Precision**

Field data recording procedures include hand written logs, audio voice recording and photographic documentation. Non-flexible measuring devices with finely graduated scales are used for measuring. If the substrate debris present obstructs or brings into question the accuracy of the depth measuring process, they will be excavated by hand to verify actual substrate depth.

#### **b) Accuracy**

Transect accuracy begins by verifying the coordinates of the previous surveys. The process used to do this and record the transects that are part of this survey

is similar. The transect hub coordinates and bearings are drafted onto an electronic chart. Transect bearings and distances are then established and measured. This is compared to the survey logs and pre-existing reports for accuracy. The electronic chart is then traced by an AutoCAD program, the transect angles are verified and a scale is determined. This draft then undergoes the addition of sample point data to provide a visual representation of the total survey area. The zones of Continuous and Discontinuous bark debris is then identified. Operational debris and bathymetric information is incorporated into the final draft as necessary. The use of this method provides for accurate repeatability, as the drafts are based on the same nautical charts that will be used to relocate the sites transects in future surveys.

**c) Completeness**

Reports are checked against contractual requirements to ensure they contain all of the information required.

**d) Representation**

Each Bark Monitoring Report is based on field data collected in one site assessment. The environment is in a state of constant change, thus the data in the report is only accurate as of the date of the survey. Additionally, information from previous reports produced by other contractors that is cited in a report is not warranted as to accuracy or content. The information contained in each Bark Monitoring Report is reviewed to ensure that its overall impression fairly represents the site conditions at the time of the field survey.

**e) Comparability**

Each Bark Monitoring Report is drafted and based solely on information obtained from the field survey. Comparisons to previous surveys conducted by this contractor will be found in the conclusions section of the report. Comparisons to previous reports conducted by other contractors will be included by request. Such a comparison (of another contractors report) may not be as conclusive because of differences in techniques, equipment and reporting formats.