

## Shellfish Tissue Sampling Protocol for NRDA

### Sampling Objectives

The focus of this document is collection of tissue chemistry samples from intertidal or subtidal areas. Tissue samples may be collected to support various objectives during a natural resource damage assessment. Samples may be taken in proximity to oiled sediments or oil strandings to assist in evaluations of weathering and fingerprinting of oil; to investigate an exposure pathway; beneath floating oil to determine the degree to which constituents are being released into the water column; to support exposure and transport modeling; and for other reasons. Other samples may be taken for biological assessments.

This protocol does not address tissue sampling objectives. Prior to collecting samples a plan should be drawn up that clearly establishes specific sampling objectives including the types and locations of samples to be collected. This protocol supports natural resource damage assessments by establishing the procedures that ensure sample integrity and the reliability of chemical characterizations as evidence in a damage assessment case. For detailed step-by-step instructions on how to collect various types of samples, refer to your sampling plan or other agreed upon SOPs.

### Container and Sample Size

Hydrocarbons - 30 g wet wt tissue (intact individuals only – don't shuck) foil-wrapped and bagged, or without foil into certified-clean glass jar.

% Lipid and % Moisture - from same sample as above

Other parameters – see group-specific work plan

### Sampling Equipment

- Shovels, dredges, tongs, grabs or gloved hands are used to collect shellfish from intertidal and subtidal areas. For infaunal species, a screen is useful for sieving out sediment.
- All non-disposable sampling gear must be decontaminated before using and between sampling stations. Wash with laboratory-grade detergent and then rinse well with clean water. If taking multiple samples at an oiled station, decontaminate sampling equipment between samples.

### Sample Collection Methods

- Take relevant photos at all sites before sampling (see GPS and photography bullet below).
- Attached organisms are pried away from the substrate with a knife, trowel, etc. Infaunal samples should be rinsed with clean site water to remove sediment. Collect live animals (shells intact and tightly closed) if possible. Note the condition of dead animals if collected.
- Wear nitrile or other non-contaminating gloves and change gloves after each sample to avoid cross-contamination.
- Record observations of any external evidence of contamination; external oil will be analyzed separate from the tissues.
- Refer to workgroup sampling plan for approximate number (volume) of individuals needed to obtain the estimated 30 g tissue wet weight for the target species. Don't shuck.
- If shellfish are collected only for fingerprinting purposes, individual size is not important so long as the required mass is gathered. For other objectives, e.g., morphometrics, gonad assessments, harvest or

food-chain exposure, individuals may need to be an appropriate or similar shell size. If required by work plan, record individual shell size.

- Group all individuals for a sample into aluminum foil and placed in double Ziploc bags; or without foil, into a certified-clean glass jar. For bags, the inner bag is labeled with marker pen and a waterproof sample label placed between the two bags. Jars are labeled on an adhesive label and directly on the lid. Use clear tape to protect the paper label.
- Avoid sources of contamination such as exhaust fumes and engine cooling systems on vessels. Work up-wind of any exhausts. Segregate dirty/clean areas. Lay out clean substrates to work on and replace frequently. Take precautions so as not to cross-contamination of the site from oil on boots and shovels.
- If possible, sample least-oiled areas first, followed by the more contaminated areas to minimize risk of cross-contamination. Avoid sampling from creosoted pilings.
- Immediately place all samples in coolers on ice. Ship samples to the laboratory as soon as possible; samples should be received by the lab for processing or freezing within 7 days of collection. If holding samples for several days is unavoidable samples may be stored frozen before shipping to the laboratory. Consult with [dwhsampleintake@gmail.com](mailto:dwhsampleintake@gmail.com) for specific instructions; special shipping will be required to maintain samples in a frozen state until received by the lab.

### **Labeling / Documentation / Other Considerations**

- On the FTP site, the NRDA Field Sampling Checklist generically summarizes pre- and post-field sampling tasks.
- Prepare sample labels as presented in NRDA Data Management Protocol for Field Sampling. If using jars, record the sample number on both the label and lid. IDs on sample labels must be complete and identical to IDs on the chain of custody. Jar labels receive a protective layer of clear tape wrapped around the entire circumference of the container to secure the label and protect the writing.
- See the event-specific protocol documents for shipping to designated labs (NRDA Sample Shipping Instructions) and for chain of custody and sampling documentation instructions (NRDA Data Management Protocol for Field Sampling). Tissue sampling log sheets typically record sample number; date/time, location, GPS coordinates, species and tissue type.
- Documentation is critical; all field notebooks should be dated, signed and preserved. If crossing out or correcting any entries, date and initial when making the changes. Original records will be gathered and archived.
- Record the presence of oil, weather conditions, etc. in field notes. Record GPS coordinates for each sample.
- Take relevant photographs of the sampling locations and sample collection itself if possible. Make sure each photograph or series can be later associated with the corresponding sampling location GPS (see NRDA Field Photography Guidance). Do not delete, open or alter any photos.
- All sampling, COC, shipping, GPS and photo files are submitted to [dwhsampleintake@gmail.com](mailto:dwhsampleintake@gmail.com). Sampling hotline: 985-746-1394.
- The labs have received instructions specifying sample processing and analytic methods.