Underwater Sampling

Version 1.0
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Set-up & Pre-Collection Checks

- **Logistics & Organization:**
  - Verify all equipment for collection are with collection team
  - Ensure all sampling containers have the appropriate label and are arranged for efficient collection.
- **Permitting & Safety:**
  - Confirm permitting for collection site
  - SCUBA Dive flags are raised and area is free of boat traffic
  - Conditions for SCUBA are safe and an emergency action plan is in place
- **SCUBA Buddy & Gear:** Perform “Buddy & Equipment Check” - BWRAF
- **SCUBA:** Collection gear secured and roles assigned to the collection team.
- **Support:** Ensure there is a team on land or at the surface, ready to secure samples upon return and check-in samples.

MATERIALS: Pre-labeled Whirl-Paks (4 oz and 1 Liter), Sterile scoop, Reinforced nitrile gloves, Mesh bag, Waterproof paper, pencil & clipboard, Device to take temperature and depth, Underwater camera, Coral clippers, tweezers/forceps

1. Finalize dive plan with collection team and translate plan to surface team.
   - *Who is collecting? How many samples? SCUBA signs. Approximate duration of the dive.*
2. Secure collection equipment and materials to your SCUBA dive gear.
3. Perform buddy and equipment check (BWRAF)
4. Put on reinforced nitrile gloves for collection
5. Enter water and wait for the full team if possible before descending.
   - Perform bubble check on gear and final collection equipment/materials check.
6. Descend to the collection site.

Collection

- **Descent & Positioning**
  - Descend as a team and maintain visual contact with buddy and collection lead.
  - Position neutrally buoyant near the sampling site, taking care not to disturb sediment, coral, or biomass unintentionally.

Metadata Collection:

- Collect the following information about each sample:
  - Field ID
  - Time of Collection
  - Type of Sample
  - Depth (m)
  - Temperature (C)
  - Photo of sample

Sampling Order:

Collect in the following order per site to minimize contamination between samples:

1. Water
2. Sediment
3. Biomass
4. Coral samples (if included in dive plan)

Water Sampling

1. Use pre-labeled 1 L Whirl-Pak.
2. At depth, open bag underwater, allow to fill passively (~30 sec), then seal by twisting tabs 3×
3. Place the sealed bag in a mesh sample bag.

Sediment Sampling

1. Approach slowly to avoid disturbance.
2. Use a sterile scoop to collect the top 1–3 cm.
3. Transfer into 4 oz Whirl-Pak with ~25% adjacent water (~15 mL).
4. Seal by twisting tabs 3×; store in a mesh bag.

Biomass Sampling

1. Use sterile scoop/tweezers to collect 1–5 mm of active surface layer.
2. Transfer into 4 oz Whirl-Pak with enough adjacent water to form slurry (~15 mL).
3. Seal bag and store in mesh bag.

Coral Sampling (if applicable)

4. Identify a coral and take a photo for species identification
5. Use a clipper or coring device to collect 2–3 cm fragment or mucus sample.
6. Transfer into 4 oz Whirl-Pak with adjacent seawater to cover tissue.
7. Seal and store in a mesh bag.

- **During Collection**
  - Handle all samples with reinforced nitrile gloves.
  - Avoid overfilling bags; ensure 3 twists minimum when sealing.
  - Place all samples in designated mesh bag for transport to surface.

- **Safety & Logistics**
  - Follow the collection lead and end the dive following their instruction
  - Always perform a safety-stop at the end of the dive
  - If the sample is too difficult to access during the dive, do not attempt and make a plan later to return and collect it safely

Post-Collection

- **Surface Transfer**
  - Keep mesh bag upright during ascent and hand directly to surface support.
  - Immediately place samples on ice or in shaded cooler at boat/shore base.
  - Take photos of the metadata collection during the SCUBA dive, collected on a slate or waterproof paper. Upload to the cloud.

- **Initial Handling**
  - Confirm each Whirl-Pak is sealed and undamaged.
  - Stand all samples upright; avoid stacking or crushing.
  - Keep samples on ice or at 4 °C until check-in.

- **Final Notes**
  - Flag any compromised samples (leaks, contamination, missing metadata).
  - Notify person leading Check-In when samples are ready for intake