



Field Activities

Module 5

Survey & Sample Collection





The Incident Response Team

Module 5

Minimum 6 members- some may fill more than one role

- Incident Commander
- Survey Team
 - Cartographer
 - Videographer
 - Tactical Specialist
- Collection Team * one member should be disease specialist
 - Sampler
 - Sample Handler
 - Records Diver
- Support Team
 - Sample technician
 - Logistics Chief
 - Snorkeler

Dive Teams

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Underwater response has two functions:

Survey Team

- Site analysis
- Mapping
- Transects
- Marking colonies for sampling

Collection Team

- Sample collections
- Photodocumentation
- Colony data collection





Collection Team

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Responsible for:

- Sample collection
- Photo documentation
- Tagging



Collection Team Members

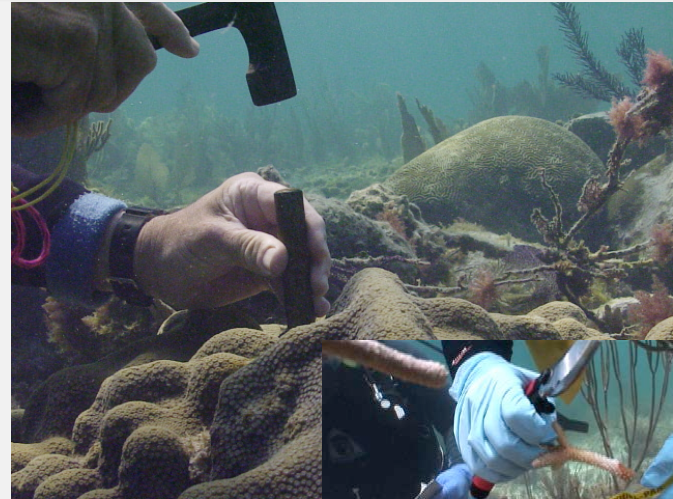
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Sampler

- Clips, cores, syringes, etc.
- Trained in sampling techniques
- Photographs pre and post biopsy

Sample Handler

- Assists Sampler
- Places samples in appropriate containers
- Assists Sampler with tools, etc.
- Maintains QA/QC procedures
- Sends samples to surface with "See Me Sausage"



Collection Team Members

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Records Diver

- Fills out *Sample Data Sheet*



Samples to Collect

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- Water samples
- Sediment samples
- Swab samples
- Mucus collection with needle-less syringe
- Core samples with stainless punch
OR
- Clipped samples



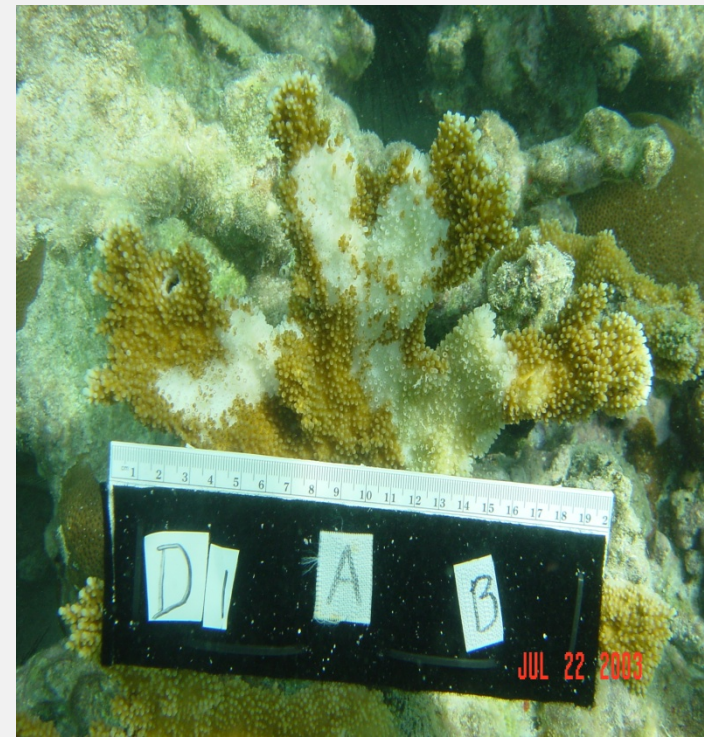
PROTOCOLS

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Always work from CLEAN to DIRTY Areas

General:

- ❖ Sterile Techniques
- ❖ Organization of Samples
 - ❖ Photos
 - ❖ Labeling scheme
 - ❖ Logbook





Sample and Data Integrity

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Sample appropriate colonies

“Reference”

- uninfected colonies from areas where no corals exhibit gross signs of the disease

“Healthy”

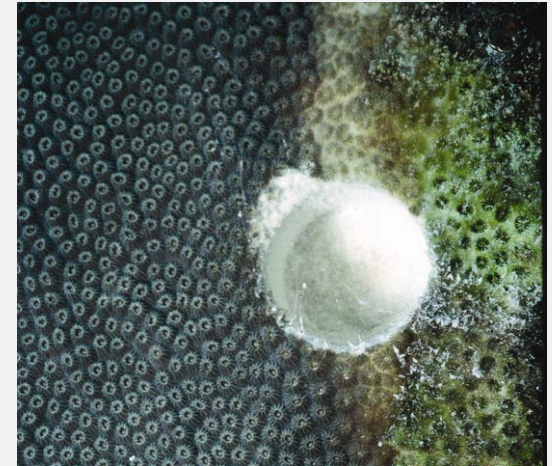
- apparently healthy corals in affected sites

“Unaffected”

- areas of diseased colonies with normal appearance, distant from the lesion

“Diseased”

- margin of the lesion





Sample Labeling

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Labeling Scheme:

- Collection Site Letter
- Four letter abbreviation for species of coral
- Colony number at site
- Two letter sample type abbreviation

| <u>Colony Type</u> | <u>Sample Type</u> | <u>Analysis Type</u> |
|--------------------|--------------------|----------------------|
| Reference | Water | Protein |
| Healthy | Sediment | Fixative |
| Unaffected | Mucus | Bacteria |
| Diseased | Applicator (swab) | |

ex.

Reference Site A, protein sample = A.*Dstr*.1 R-P

Diseased Site B, tissue for histology in fixative from diseased portion of diseased colony 4 = B. *Apal*.4.D-F

Diseased Site B, mucus from unaffected portion of a diseased colony 2= B. *Apal*.2.U-M

Specific Sampling Order Required Due To Time Sensitivity

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- Water
- Sediment
- Swab
- Mucus
- Tissue-B (Bacteria/microbiology analyses)
- Tissue-F (Fixative-for histology analyses)
- Tissue-P (Protein-Molecular analyses)



Most time sensitive samples



QA/QC Procedures

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Minimize Cross Contamination

- Visit sites with no signs of disease first
- Sample healthy coral first, then affected coral
- Use disposable nitrile gloves/change between each colony visited
- Use separate & disinfected sampling equipment for each colony
 - soak in 5-10% hypochlorite (bleach) solution to disinfect
 - rinse with fresh water between each use
- Clean dive gear by soaking in disinfectant and rinsing in fresh water at the end of each dive

Sampling Tools

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- Polypropylene tubes for sediment
- Swab/Applicator for mucus and tissue sample
- Syringe without needle for mucus sampling
- Coring technique- 1.5-3 cm diameter punch samples of tissue and skeleton for larger colonies
 - *clay may be inserted, contingent upon requirements in a given area
- Clippers or Bone Shears- can be used for tips of branching specimens



Sampling Supplies

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3mL Syringes
(mucus/water)

Swab

Tissue bags

Coring
Supplies

Nitrile Gloves

Collection
Bag

Cattle Tag

15cc
Falcon Tube
(sediment)



Water

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Collect seawater in a 3cc syringe
One reference water sample should be collected
for each colony
Equal volume to mucus collection

Sediment

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**Scoop sediment with sterile pre-labeled
15mL conical polypropylene tube or similar
container**



Mucus

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Mucus samples are collected in a syringe



The surface may need to be “irritated” prior to collection

Swab/Applicator

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This experimental technique is being used to collect mucus/ tissue for Molecular and Microbiology analyses



Wipe swab across the area being sampled 3 times

Video

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VIDEO OF SAMPLE COLLECTION

- 5 Captioned Video Clips – CDHC Webpage
- DVD request via cdhc.coral@noaa.gov



Safety Issues

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- Diving depth & time
- Tool use
- Material hazards (i.e., Z-fix gluteraldehyde)
- Boat use



Reality

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Samples for Toxicants Analysis

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**Samples for
contaminant testing
require special precautions,
using different methods
than the ones outlined here**