**Mote Marine Laboratory – Structure-from-Motion Image Capture Protocol**

**SIte SetUP**

1. **acer:** ACER outplant events are typically conducted on reef habitat that contains a highly rugose ledge which transitions to more monotypic hardpan. We will refer to this ledge as the “front” of the outplant area while the hardpan is the “back”.

Floats and scale bars will be used to mark the back boundary of the outplant area (floats), each array of outplants (scale bars), and to provide scale for the downstream products (scale bars).

* 1. **Floats:** Floats should be placed ~1m away from the last outplant in each array and create the back boundary of the outplant area. They are solely used for navigational purposes so the surveyor has visual cues of the “back” of the outplant area (with the ledge providing visual clues for the front).
  2. **Scale bars:** Scale bars should be placed between each array, approximately half way between the front and back of the outplant area. It is important that nothing is obscuring the scale bars (e.g. gorgonians, sponges, etc) so they can be clearly photographed from above.

1. **APAL**: APAL outplant events are typically conducted on spur-and-groove habitat. An outplant event may occur over an entire spur, or partial spur. Similar to ACER, you will use the edge of the spur as the “front.” If you are outplanting a whole spur, the “front” and “back” will be the end of the spur and arbitrary (usually the “front” will be the direction in which you start image capture). If you are outplanting a partial spur, the “front” of the outplant area will be the spur edge while “back” will be the where you stop outplanting on that spur.

Floats and scale bars will be used to mark the back boundary of the outplant area (floats), each array of outplants (scale bars), and to provide scale for the downstream products (scale bars).

* 1. **Floats:** If outplanting a partial spur, floats should be placed ~1m away from the last outplant along the back of the spur. They are solely used for navigational purposes so the surveyor has visual cues. If outplanting a whole spur, floats may not be necessary.
  2. **Scale bars:** Scale bars should be placed throughout the image capture area. Unlike ACER, genotypes are not as easily delineated with an APAL outplant event. So scale bars should be placed throughout the scene in spots free of overhead obstructions so they can be clearly photographed from above and not covering any proposed or existing outplants.

**IMAGE CAPTURE**

**Briefly, image capture for outplant sites use two GoPros, set 60cm on a custom PVC frame. GoPros are set to capture 1 photo/sec. More in-depth GoPro setup instructions can be found here: https://github.com/icombs2017/nfwfEdrMonitoring/blob/main/protocols/GoProSetUp\_README.**

**When you are in-water and ready to begin, simply HOLD the capture button (red circle on top of GoPro). The GoPro will turn on and you will begin to see a red LED flashing in the top left corner of the GoPro and a red dot on the LCD screen with a number counting up sequentially.**

**Note: If you see a time stamp counting up (e.g. 0:01) you are filming, press the capture button again to turn off the GoPro and HOLD it to start TimeLapse Mode.**

**Once you have finished capturing your scene, simply press the Capture button again to turn the GoPros off.**

**Note: You will see the screen illuminate and it will display "Powering off"**

1. **acer:** ACER outplant events are typically conducted on reef habitat that contains a highly rugose ledge which transitions to more monotypic hardpan. We will refer to this ledge as the “front” of the outplant area while the hardpan is the “back”.