

## Oceanographic Conditions

### **Purpose**

To record temperature fluctuations at the kelp forest monitoring sites

### **Materials**

- 2 Onset Computer Corp. UTBI® temperature loggers
- 1 underwater housing
- 1 KFM contact information label
- 2 3/4 inch open end wrench
- 1 computer with appropriate Onset software
- 1 hopefully previously installed thread rod with two top nuts, two bottom nuts and two washers.

### **Personnel**

- 2 SCUBA divers with experience in deploying and retrieving these temperature loggers.

### **Methods**

The UTBI® temperature loggers are placed in an underwater housing that is bolted to a thread rod inserted into a drilled hole in the substrate and cemented with SplashZone epoxy at each site. The location of the unit at each site is listed in Table 1 of this Handbook. The loggers are programmed to record one temperature reading per hour. The loggers retrieved for downloading and deployed once per year during the summer sampling.

Using the two wrenches, remove the old temperature unit from the thread rod by unscrewing the two nuts on the top of the housing and sliding the unit off. One wrench is used to hold the bottom of the two nuts while the other wrench is used to unscrew the top nut. Take caution not to place any twisting tension on the main thread rod that could loosen its attachment to the substrate. While doing this, check to see that the thread rod to which the unit is attached is still well epoxied to the bottom. Note if it needs repair or replacement. Be careful not to lose track of the washers that fit between the nuts and the temperature logger housing. Once removed, *immediately* place the old housing inside a collection bag so as not to lose it!

Take the new housing, which should contain two deployed UTBI® loggers and KFM contact information label inside, and slide it onto the thread rod with a washer between the housing and the two bottom nuts. Replace the washer followed by the top two nuts. Make sure there are washers on both ends of the housing between the housing and the nuts! The nuts should be tight enough to ensure that the unit cannot move on the thread rod; however, be careful not to crack the PVC housing. Similar to the removal process, both wrenches need to be used to tighten the nuts so that the tightening resistance is only placed on the nuts and not the thread rod. Record the time the old unit was removed as well as the time the new unit was deployed and be sure to write this information in the temperature logger notebook immediately after the dive.

**\*\*Note:** it is very important to record the correct time as the temperature logger is still recording data and the erroneous data points will need to be deleted later. **\*\***

Procedures on how to download the temperature data and prepare the unit for redeployment are described in Volume 2 of this handbook