

## **Acoustic Survey CTD Sampling Protocol**

### **What is a CTD profile**

CTD stands for conductivity, temperature, and depth, and refers to a package of electronic devices used to detect how the conductivity and temperature of water changes relative to depth. It is useful to collect other oceanographic parameters while taking a CTD profile, such as turbidity, chlorophyll, etc if sensors are present.

### **How to take a CTD profile**

A CTD profile can be taken standalone with a specified winch or similar. Or a CTD profile can be taken by attaching a CTD data logger on the bio-sampling trawl gears such as the trawl net beam, when a CTD profile is taken while bio-sampling is taken.

### **When to take a CTD profile**

To save survey cruise time, CTD profiles can be taken at bio-sampling/trawl stations. Otherwise, CTD profiles can be taken each 20nmi station but that it would be acceptable to sample 2-3 stations per 60 nmi of transect.

### **Specification for taking a profile**

A CTD profile shall be down to 250m if a water depth is more than 250 m. Otherwise the CTD profile can be down to 10 m above the sea floor. It is acceptable that a CTD profile is taken down to the depth of 200 m if a CTD logger is mounted on the bio-sampling trawl gears. Considering the CTD data logger sampling rate, the CTD data logger shall ensure that it could collect data with a depth resolution of 1 m. For instance, SeaBird Microcat CTD data logger has the fastest sample rate 1 sample/6 seconds, and hence the CTD logger shall be released/retrieved at a vertical moving speed 1 m/6 seconds.

### **CTD instrument calibration**

A CTD instrument shall have valid a calibration certificate when it is used to take a CTD profile. CTD instruments must be calibrated according to the manufacturer recommendations such as once a year. Otherwise, it must be specified in the meta data that a CTD profile is taken with invalid calibration alongside the instrument calibration date.

