

# "Castaway" Salinity Profiler – Instructions for Use

## Arctic Eider Society, Winter 2015

### 1. Before Leaving Town

a. Bring along a thermos full of hot water to help thaw the Profiler and remove any ice, if needed.



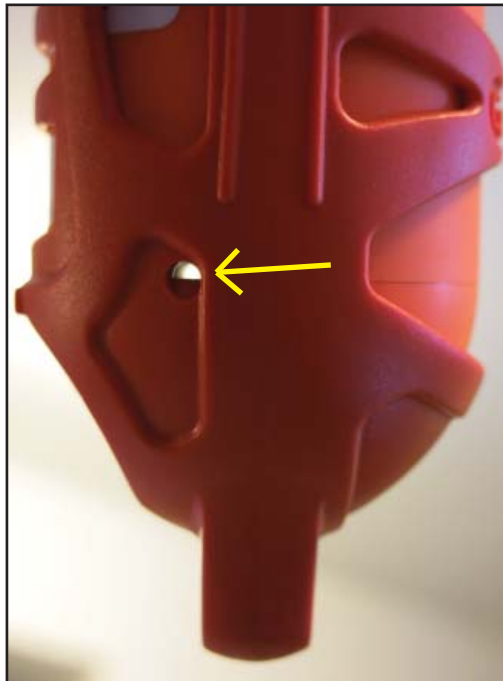
b. Bring along a large ziplock bag or other plastic bag. The best way to make sure the Castaway works properly in cold conditions is to put it in a bag and warm it up inside your jacket before doing a cast. This keeps it dry and warm and leads to less problems with ice forming on it than using hot water. The hot water can be used as a last resort if there is substantial ice to remove.

c. Make sure that the castaway case is tied down secure in the Kamotik/sled so that it will not bounce around during travel.

### 2. At the Site, Using the Profiler



A. Create a hole in the ice and remove as much slush as possible. Slush can fill up the Profiler and cause an error in the measurements.



B. Warm the Castaway up inside your jacket to avoid problems. Check for ice, particularly the small hole in the bottom. This is where the depth sensor is located. You should be able to see through to the other side of the castaway and blow through the hole to make sure it is free of ice. Always blow through this hole when removing it from the water to remove water and ice.



C. Turn on the profiler by pressing the top left button.

# Main Menu

This button turns the power off when you see the red symbol



## Battery Indicator

	90-100% full charge
	20-90% full charge
	10-20% full charge
	0-10% charge remaining

(Make sure it is warm to get an accurate reading. Instructions to change batteries are in the case)

This button moves between settings. Always choose the first setting



This button selects the setting and gets you started!



This icon should always be selected (white box). If not, use the bottom left button to move the white box to select it.

When this is selected, press the bottom right button to get started.



# GPS MENU

The profiler will now find satellites to acquire GPS coordinates. If this is the first time the Profiler has been used in a while, it may take 10 or more minutes to find the satellites.



When the button turns Green, the GPS coordinates have been found and you can press the bottom right button to begin the cast.



No GPS position (flashing red LED

Low quality GPS position (flashing yellow LED

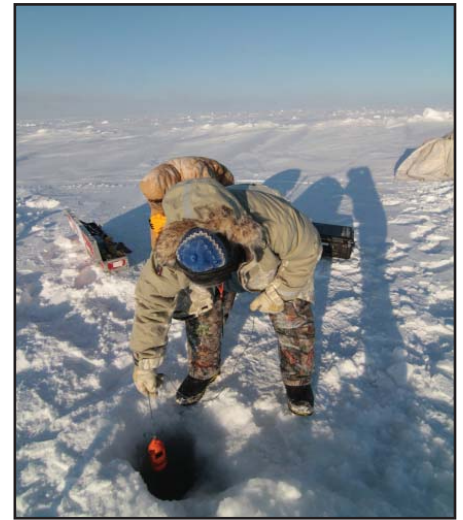
High quality GPS position (solid green LED

*Note: the Time of Day is in UTC, this is Universal Time; it will be about 5 hours different from Eastern Standard Time Zone.*

## Start Cast Menu



When you see this screen, it is time to put the Profiler in the water!



1. Check to make sure there is as little slush as possible in the hole
2. Lower the Profiler into the hole. Let it rest just under the ice for 5-10 seconds to let it get used to the water
3. Lower the Profiler into the water – let it fall as freely as possible, you don't need to slow it down.
4. Once it hits the bottom, begin to pull it up right away as smoothly as possible. Don't let it sit on the bottom.

**Important! Make sure the profiler never goes deeper than 75m (250ft). It will damage the equipment if it goes deeper.**

5. Pull it out of the water. The screen will be blank. Press the bottom right button to stop it recording.

## Stop Cast Menu



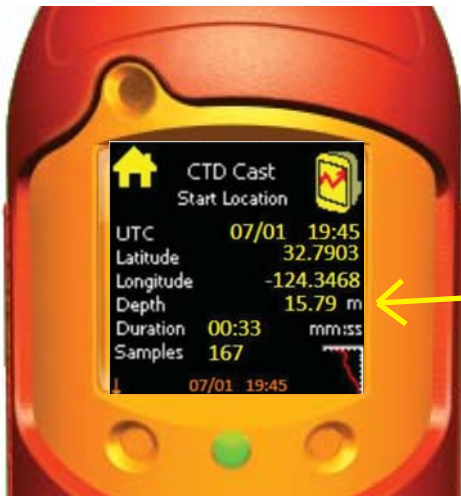
Press bottom right button to stop recording and show the menu.

**6. IMPORTANT! As soon as you've pressed the button, dry off the Profiler as much as possible. Blow into the small hole (depth sensor) and the bigger one (salinity/temperature sensor) to remove any water or ice as soon as possible to prevent freezing. Blow into the buttons to prevent ice there too.**



The Castaway will look for satellites again to confirm your location. When the "X" on the bottom right turns green, press the button again.

# Check Results Menu



This screen shows the information on the cast you just completed.

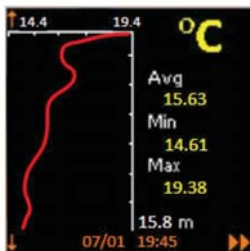
Here you can see the Depth that you sent it down to. Check to make sure it makes sense. If you lowered it down about 40m and it says only 10m then chances are there was ice in the small depth sensor hole. You will need to start over and do the cast again after removing the ice.



Press the Bottom Right Button to Check the Results.

The first page will show you the temperature of the water.

## Temperature

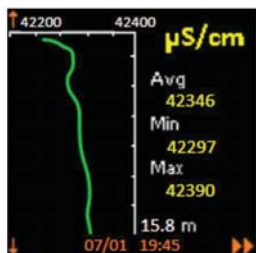


**THIS IS IMPORTANT.** Ocean water freezes around -1.5 C. If the average, minimum or maximum temperature is colder, say -1.55C , -1.6 C or even colder, it means the Profiler was probably too cold and ice formed on it. If this is the case, the measurements are useless and you'll need to pour warm water over the Profiler to warm it up and try again.

*NOTE: We've noticed that if the Castaway was too cold before you started the cast, sometimes when you preview this temperature graph it appears blank and the castaway unit totally locks up. You will need to remove the batteries briefly to reset the unit. Do so carefully to ensure there are no leaks. Making sure you warm the castaway up inside your jacket before doing a cast should prevent this from happening.*

Press the Bottom Right Button to go to the next page.

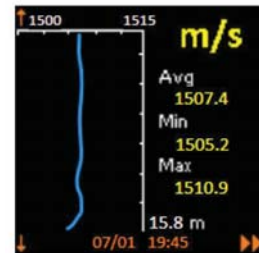
## Conductivity



## Salinity



## Speed of Sound



You can skip this one, press the Bottom right button again to go to the next page.



This shows the salinity, which is what we are interested in. It will probably be between 20 and 30. Press the Bottom Right Button to go to the next page.




You can skip this one too, press the Bottom right button again to go back to the Check Results Menu.

## Check Results Menu



After viewing the results you will be back on this summary page.

 Press upper left button to return to the home screen

## Main Menu

This button turns the power off when you see the red symbol

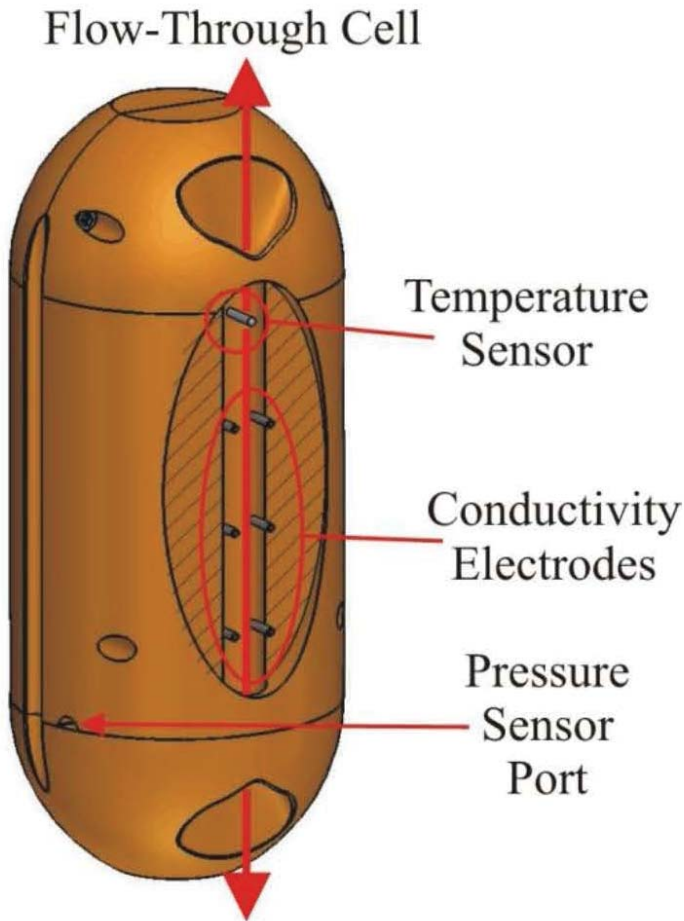


This button selects the setting and gets you started!

Back on the Main Menu, you can press the Top Right Button to turn it off, or press the Bottom Right Button to start over again.

**If you have any doubts about if the Castaway was warm enough and working properly, it is a good idea to do another cast just to make sure. If there was ice or the temperature was showing below -1.5 C, then do another cast after removing the ice and warming up the Castaway before you try again.**

## Keeping it Ice Free and Working



This diagram shows where the sensors are that measure Temperature, Salinity (Conductivity) and Pressure (Depth).

Make sure these areas are always kept free of ice. Blowing into the holes as soon as it comes of out the water will help keep ice freezing on it.

If they are frozen and blowing does not remove the ice you can pour warm water on these areas to make sure it is ice free.

## Changing the Batteries

To change the batteries, remove the orange unit from the plastic harness. Twist the end and pull gently. Avoid touching the o-ring. ***Make sure the surfaces are clean, dry and free of all ice before re-installing to make sure there are no leaks.***

Picture instructions are also included on a laminated card in the yellow case.