From: "Vardaro, Michael" <>
Subject: **RE: chamber volume**
Date: September 8, 2009 12:40:22 PM PDT
To: "Hobson, Brett" <hobson@mbari.org>
Cc: "Sherman, Alana" <alana@mbari.org>, "McGill, Paul" <mcgill@mbari.org>, "Smith, Ken" <ksmith@mbari.org>

Hi all,

Just measured the volume of the Rover chambers, with invaluable assistance from Paul (hose cleaning and bailing-cup locating) and Alana (water removal, hole-plugging, and mopping).

The final result was: 13.6 liters (completely full, including the blade).

-Mike

From: Hobson, Brett
Sent: Friday, September 04, 2009 1:24 PM
To: Vardaro, Michael
Cc: Sherman, Alana; McGill, Paul; Smith, Ken
Subject: chamber volume

Hi Mike,
Here's what I think the chamber volume is:

Benthic Rover Respirometer Chamber Volume

1. Chamber volume
    a. Inside diameter of chambers: .303m (11.93")
    b. Distance from top plate to bottom of acrylic: .121m (4.75")
        i. Each mm of exposed knife adds: 72 cc
    c. 8.7×10^{-3} M^3 , 8700.9 cc or 530 cubic inches

d. Add volume below valves

i. Front valve: 48cc, or 2.65 in^3

ii. Side valves (2): 25.2 cc, 1.54 in^3

e. Add volume around stirrer: ~ 5cc, .3 in^3

f. 8700.9+48+25.2+25.2+ 5= 8804.2 cc

2. Minus the volume of components inside the chamber

a. Optode: 57.1 cc, or 3.48 in^3

b. Stir rods: 28.6 cc or 1.74 in^3

c.

3. Total volume 8718 cc

a. Don't forget to add added/reduced volume based on level of sediment.

4. If you really want to know the precise volume, then you should remove the rack/chamber, and carefully fill it with water and measure the actual volume

Brett

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