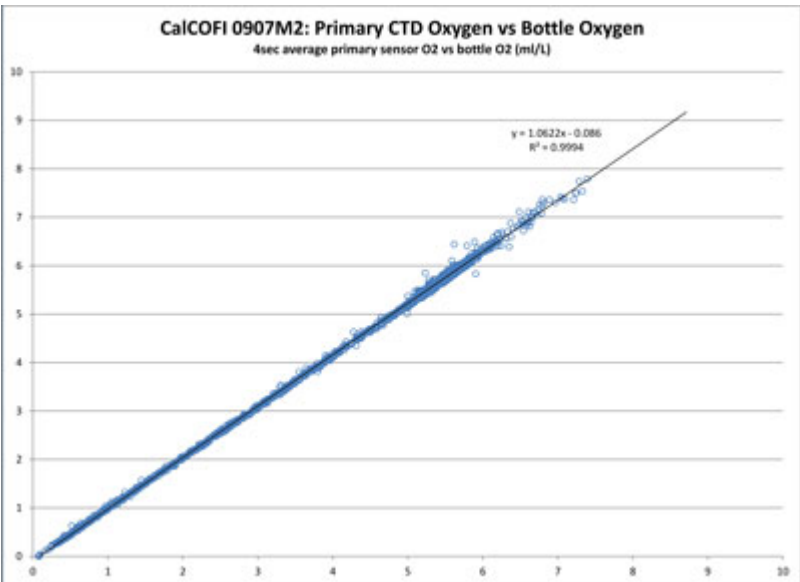
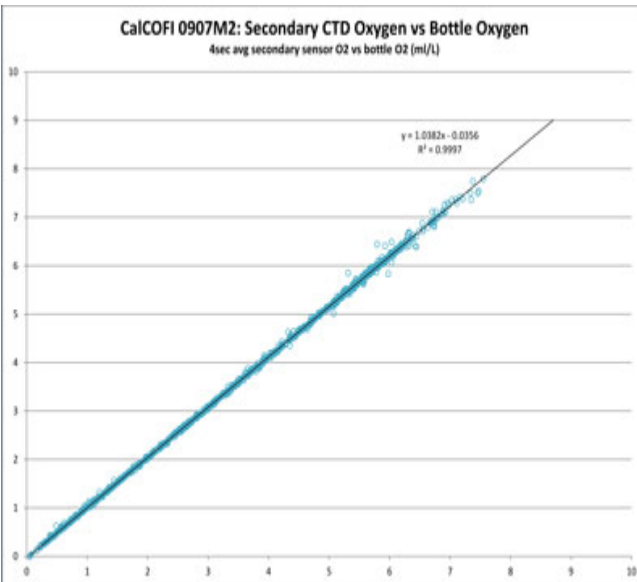


0907M2 CTD Processing Summary

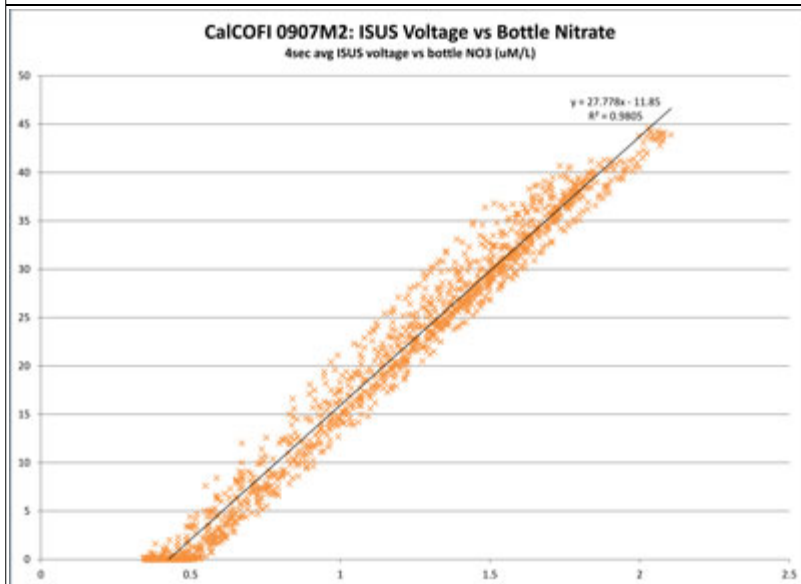
Parent Category: 2009 Cruises (</cruises/older-cruises/2009.html>)

Category: CalCOFI 0907M2 (</cruises/older-cruises/2009/204-calcofi-0907m2.html>)

 Last Updated: 05 June 2018

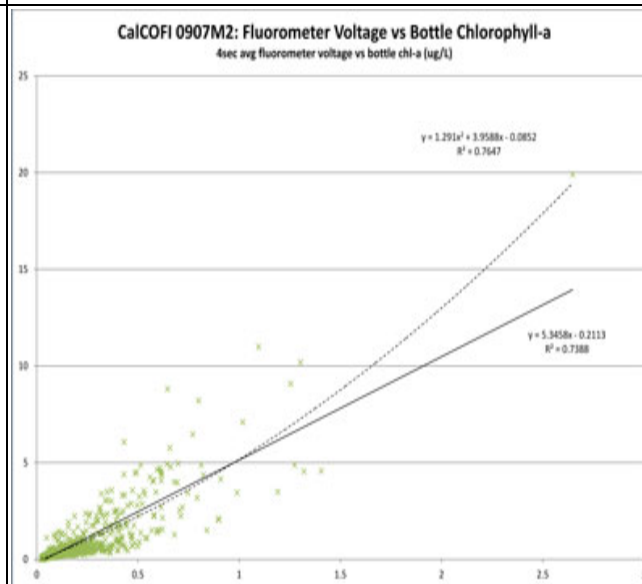
CTD Processing Summary CalCOFI 0907M2 CTD Final Data (reprocessed/reformatted 02/2018)		
Download 0907M2 CTD raw cast files zipped (http://cappuccino.ucsd.edu/downloads/2009/20-0907M2_CTDCast.zip)		Download 0907M2 FinalQC CTD + bottle data (http://cappuccino.ucsd.edu/downloads/2009/20-0907M2_CTDFinalQC.zip)
General CTD Notes - data acquisition cast notes, logistics, processing notes are listed below		
CTD sensor corrections derived by comparing 4 secs of CTD sensor data (prior to bottle closure) to bottle samples		
Dual T, S, & O2	Primary Sensor	Secondary Sensor
Salinity offset (bottle - CTD salinity; > 350m only; Seabird SBE4)	0.0088	-0.0124
Oxygen (ml/L; dual Seabird SBE43)	$y = 1.0622x - 0.086$ $R^2 = 0.9994$	$y = 1.0382x - 0.0356$ $R^2 = 0.9997$
Oxygen (umol/Kg; dual Seabird SBE43)	$y = 1.0622x - 3.7495$ $R^2 = 0.9994$	$y = 1.0383x - 1.5513$ $R^2 = 0.9997$
Single sensors		
Nitrate - ISUS 4sec ave voltage vs Bottle Nitrate (Satlantic MBARI-ISUS v2)	$y = 27.778x - 11.85$ $R^2 = 0.9805$	
Fluorometer - linear & polynomial regressions	$y = 5.3458x - 0.2113$ $R^2 = 0.7388$	$y = 1.291x^2 + 3.9588x - 0.0852$ $R^2 = 0.7647$
		
http://cappuccino.ucsd.edu/downloads/2009/0907M2/0907M2_Ox1MLvsOxBML.jpg		http://cappuccino.ucsd.edu/downloads/2009/0907M2/0907M2_Ox2MLvsOxBML.jpg

(http://cappuccino.ucsd.edu/downloads/2009/0907M2/0907M2_Ox1UMvsOxBUM.jpg)



(http://cappuccino.ucsd.edu/downloads/2009/0907M2/0907M2_ISUSVvsNO3.jpg)

(http://cappuccino.ucsd.edu/downloads/2009/0907M2/0907M2_Ox2UMvsOxBUM.jpg)



(http://cappuccino.ucsd.edu/downloads/2009/0907M2/0907M2_FIVvsChla.jpg)

General notes:

CalCOFI 0907M2 14 Jul - 3 Aug 2009, San Diego to San Francisco

Cruise and CTD Data Processing Notes

CalCOFI 0907M2 was CalCOFI's first and only cruise on NOAA RV McArthur II. NOAA RV McArthur II left Nimitz Marine Facility, Pt Loma at 0900 14 Jul 2009. After a short sea trial off San Diego and acoustic calibration in San Diego Bay, CalCOFI 0907 started its 101 station schedule - 75 standard plus 26 northern stations on lines 67 (MBARI-SECRET) & 60. Our 24-10L bottle aluminum rosette with 911+ Seabird CTD was deployed from the O1 deck using the starboard J-frame. Nets were also deployed from a separate block

off the same J-frame from the lower deck. (McArthur had three operations decks: the main fantail deck was the "middle" deck; there was lower deck above the waterline where net tows were performed; upper "O1" deck where CTD winch and rosette landed. O2 pickling setup was on the same deck outside). NOAA crew deployed & recovered the CTD-rosette. CalCOFI techs sampled on the outboard open deck in all types of weather.

Seabird 911+ configuration:

Primary Temperature (#1324), Conductivity (#042206), and O2 sensor (#431075), pumped (#55060); Secondary Temperature (#2533), Conductivity (#357), & Oxygen sensor (#0680) pumped (#52236); Wetlabs (CST-479DR) 25cm transmissometer (misabeled Chelsea/Seatech in con); Seapoint chlorophyll fluorometer (SCF2483 @10x);

Benthos/Datasonics Altimeter (#46604); MBARI-ISUS v1 (#111); no surface PAR was installed.

(Freq0=T0; Freq1=C0; Freq2=Pr; Freq3=T1; Freq4=C1; V0=Trans; V1=Fl; V2=Alt; V3=PAR; V4=O21; V5=O22; V6=ISUS; V7-Free)

Logistics:

This was our first cruise on the McArthur II and it proved to be an excellent platform for our project. We completed the first two lines quickly, aided by good weather and

excellent ship handling and deck operations. On line 86.7 we were diverted north to line 83.3 after completing the CTD cast on sta 86.7 50.0 due to Naval operations in the area. Net tows on that station were missed. After two stations (83.3 51, 83.3 55), we returned to line 86.7, sta 86.7 55, and continued offshore without missing a station. We completed 66 standard stations and 8 SCCOOS stations before transiting north to Line 67 (66.7) off Monterey. Station spacing on line 67 was every 10nm out to 67.90 with CTD casts to 1025m. Twenty rosette water samples were collected on every 40nm standard CalCOFI station (50, 60, 70, 80, 90), and 12 rosette water samples were taken on 20nm stations (55, 65, 75, 85).

Standard CalCOFI seawater analyses were performed on all depth sampled as well as additional incubations and analyses by MBARI tech Marguerite Blum (Lines 67 & 60 only). CTD and weather data were collected on 10nm stations: 52.5, 57.5, 62.5, 67.5, 72.5, 77.5, 82.5, 87.5. The McArthur II tied up in San Francisco at Pier 23 Aug 3rd and was offloaded onto trucks for equipment transport back to San Diego.

CalCOFI 0907 CTD Data Processing & Console Ops Notes**Sta correction notes:**

Sta 4: second O2 surface values are very low and were removed from the bottle vs 4sec CTD plot.

Sta 41: 0m and deep ISUS voltage went to zero Sta 42: 0, 30 - 70m voltage went to zero

Bottle NO3 on stas 001 & 002 not used in bottle vs ISUS plots.

Removed salt fliers on both primary & secondary comparisons.

Fixes after reviewing bottle vs CTD data plots:

Sta 19 Downcast NO3 - 225 - 310m; edit d.asc and re-regress or plot cruise corrected NO3

Sta 23 Downcast NO3 - 120 - 180m; edit d.asc and re-regress or plot cruise corrected NO3

Sta 40 Downcast NO3 - 200 - 310m; edit d.asc and re-regress or plot cruise corrected NO3

Sta 41 NO3 - whole upcast and deep downcast; edit .ascs and re-regress or plot cruise corrected NO3

Sta 42 Upcast NO3 - 30 - 80m; edit u.asc and re-regress or plot cruise corrected NO3

Sta 42 Downcast NO3 - 0 - 300m (whole cast is pretty bad); edit d.asc and re-regress or plot cruise corrected NO3

Sta 43 Downcast NO3 - 200 - 310m; edit d.asc and re-regress or plot cruise corrected NO3

Sta 53 Downcast NO3 - 0 - 100m; edit d.asc and re-regress or plot cruise corrected NO3

Deep stations (~1050m):

Sta 96 Upcast: ISUS 520-600m bad section; downcast fine

No-bottle stations

Sta 79 downcast ISUS from 50 - 110m

Console Ops Cast Notes:

Cast 001 sta 93.3 26.7: 8 bottle cast to 50m, 57m bottom; extra bottle tripped at 20m mistrip

Cast 002 sta 91.7 26.4 SCCOOS: 5 bottle cast to 16m, 21m bottom

Cast 003 sta 93.3 28.0: 20 bottle cast to 515m; cast restarted, forgot initial deck pressure; scan stopped @93238

Cast 004 sta 93.3 30.0: 20 bottle cast to 515m; advised winch operator he could speed up when coming up @440-380m, also 30m/min to 100m then ~50m/min or whatever's safe for downcast. Time on console PDT not PST - fixed after station

Cast 005 sta 93.3 35.0: 21 bottle prodo cast to 515m; 1st prodo since acoustics calibration delayed arrival 1st day computer time reset to PST from PDT so first 5 cast have PDT local time; GPS time is correct of course

Cast 006 sta 93.3 40.0: 21 bottle cast to 515m; big wire angle - offset kept changing, starting @46m off

Cast 007 sta 93.3 45.0: 20 bottle cast to 515m; time on console ops PDT, one hour ahead of usual PST; CTD data time is PST & UTC

Cast 008 sta 93.3 50.0: 21 bottle cast to 515m; NO DOWNCAST DATA COLLECTED, only upcast; ISUS dropped out in thermocline (50-95m); Happy BDay Jen!

Cast 009 sta 93.3 55.0: 21 bottle cast to 515m; ISUS okay

Cast 010 sta 93.3 60.0: 21 bottle prodo cast to 515m

Cast 011 sta 93.3 70.0: 20 bottle cast to 515m; bottle #1 mistripped

Cast 012 sta 93.3 80.0: 20 bottle cast to 515m; nothing noted

Cast 013 sta 93.3 90.0: 20 bottle cast to 515m; nothing noted

Cast 014 sta 93.3 100.0: 21 bottle prodo cast to 515m

Cast 015 sta 93.3 110.0: 20 bottle cast to 515m; nothing noted

Cast 016 sta 93.3 120.0: 20 bottle cast to 515m; remote depth readout box temporarily out - fix @110m; crazy current noted, wire angle offset all over the place (to hit target depth)

Cast 017 sta 90.0 120.0: 22 bottle cast to 515m; nothing noted

Cast 018 sta 90.0 110.0: 23 bottle prodo cast to 515m

Cast 019 sta 90.0 100.0: 20 bottle cast to 515m; nothing noted

Cast 020 sta 90.0 90.0: 20 bottle cast to 535m; bottle #1 mistripped - bottle switched to fix problem

Cast 021 sta 90.0 80.0: 20 bottle cast to 515m; nothing noted
Cast 022 sta 90.0 70.0: 21 bottle prodo cast to 515m; no notes
Cast 023 sta 90.0 60.0: 20 bottle cast to 515m; probable mistrip on bottle #1, high O2 draw temperature
Cast 024 sta 90.0 53.0: 22 bottle cast to 517m; 2 517m bottle closed to insure water sample from that depth
Cast 025 sta 90.0 45.0: 22 bottle cast to 515m; 2 515m bottle closed to insure water sample from that depth
Cast 026 sta 90.0 37.0: 24 bottle prodo cast to 516m; 2 515m bottle closed to insure water sample from that depth
Cast 027 sta 90.0 35.0: 17 bottle cast to 275m, bottom ~290m; no duplicate 1-2
Cast 028 sta 90.0 30.0: 21 bottle cast to 515m, but tripped 24 bottles to test new carousel; sample log missed 1st marker but since it was a duplicate, it wasn't sample - 2-21 sampled as 1-20
Cast 029 sta 90.0 28.0: 8 bottle cast to 50m, bottom 54m; tripped 1 & 2 at 50m to test #1 again
Cast 030 sta 90.0 27.7 SCCOOS: 5 bottle cast to 20m, 30m bottom; no duplicates
Cast 031 sta 88.5 30.1 SCCOOS: 4 bottle cast to 15m, 18m bottom
Cast 032 sta 86.8 32.5 SCCOOS: 4 bottle cast to 15m, 23m bottom
Cast 033 sta 86.7 33.0: 9 bottle cast to 50m, 58m bottom
Cast 034 sta 86.7 35.0: 24 bottle prodo-DIC cast to 520m
Cast 035 sta 83.4 35.8 SCCOOS: 9 bottle cast to 50m, bottom 60m - bridge/ship did not want to go shallower than this (afternoon?)
Cast 036 sta 86.7 40.0: 24 bottle Santa Monica Basin Station cast to 690m, bottom 752-693m; drifters 93561 & 93562 deployed
Cast 037 sta 86.7 45.0: 21 bottle cast to 520m; missing marker for bottle #20, dummied up mrk file
Cast 038 sta 86.7 50.0: 10 bottle San Nicolas Is. cast to 70m, 79m bottom; 10m secchi
Cast 039 sta 83.3 51.0: 13 bottle prodo cast to 90m, bottom 99m; station out of usual sequence due to Naval Ops
Cast 040 sta 83.3 55.0: 21 bottle cast to 518m; rollers about 8' to 10'
Cast 041 sta 86.7 55.0: 21 bottle cast to 517m; back on Line 86.7 after two station Line 83 detour
Cast 042 sta 86.7 60.0: 21 bottle cast to 516m; ISUS not working until ~2/3 down on downcast; missed surface marker
Cast 043 sta 86.7 70.0: 21 bottle prodo cast to 515m; secchi depth 16m
Cast 044 sta 86.7 80.0: 21 bottle cast to 516m
Cast 045 sta 86.7 90.0: 21 bottle cast to 510m; rollers (big swell); unsupported modem message from carousel noted
Cast 046 sta 86.7 100.0: 21 bottle cast to 518m; bottle #10 looks to be a mistrip, O2 draw temp high
Cast 047 sta 86.7 110.0: 21 bottle early prodo cast to 515m; secchi depth not noted but all prodo bottle were 60m and shallower; chl max ~40m
Cast 048 sta 83.3 110.0: 22 bottle cast to 515m; Carousel, ISUS cable & battery cable serviced pre-cast; bottle #9 still mistripped, carousel serviced post-cast - new trigger installed
cast 049 sta 83.3 100.0: 21 bottel cast to 515m; nothing noted
Cast 050 sta 83.3 90.0: 21 bottle cast to 515m; nothing noted
Cast 051 sta 83.3 80.0: 23 bottle prodo cast; bottle #24 closed at surface for O2 test case; 21m secchi
Cast 052 sta 83.3 70.0: 21 bottle cast to 515m
Cast 053 sta 83.3 60.0: 21 bottle cast to 517m
Cast 054 sta 83.3 42.0: 14 bottle prodo cast to 115m; bottom 125m; 9m secchi; jumped over 83.55 & 83.51 since they were done earlier (cast 039 & 040 detour)
Cast 055 sta 83.3 40.6: 7 bottle cast to 25m, bottom 34m
Cast 056 sta 83.3 39.4 SCCOOS: 5 bottle cast to 15m; bottom 18m
Cast 057 sta 81.7 43.5 SCCOOS: 6 bottle cast to 30m, bottom 36m
Cast 058 sta 81.8 46.9: Santa Barbara Basin 24 bottle cast to 570m; "got a little hairy - was losing wire angle & getting close to bottom (~7m); wrote T in C column for 1st 3 bottles."
Cast 059 sta 80.0 50.5 SCCOOS: 6 bottle cast to 30m, bottom 36m
Cast 060 sta 80.0 51.0: 8 bottle cast to 65m, bottom 73m; "Evt = Event Log!" noted (maybe a problem with CTDatDepth)
Cast 061 sta 80.0 55.0: 22 bottle cast to 515m
Cast 062 sta 80.0 60.0: 21 bottle prodo cast to 515m; 13m secchi

Cast 063 sta 80.0 70.0: 20 bottle cast to 515m; depth sounder on ship not working - logged cheat sheet bottom depth

Cast 064 sta 80.0 80.0: 21 bottle cast to 517m; #21 DIC - put in data report; mooring @ 33N 29.03 122W 31.46

Cast 065 sta 80.0 90.0: 21 bottle prodo cast to 515m

Cast 066 sta 80.0 100.0: 20 bottle cast to 515m

Cast 067 sta 76.7 100.0: 20 bottle cast to 515m; bottom depth from cheat sheet - ship echosounder reading 4000m; "crazy big" wire angle ~70m of extra wire @500m; big rollers as well; "record" offset 574m @ 515m

Cast 068 sta 76.7 90.0: 21 bottle cast to 515m; #21 O2 test case

Cast 069 sta 76.7 80.0: 21 bottle prodo cast to 515m; secchi depth 14m

Cast 070 sta 76.7 70.0: 20 bottle cast to 515m; chl max 28m

Cast 071 sta 76.7 60.0: 20 bottle cast to 515m

Cast 072 sta 76.7 55.0: 21 bottle cast to 515m

Cast 073 sta 76.7 51.0: 16 bottle cast to 230m

Cast 074 sta 76.7 49.0: 9 bottle cast to 60m

Cast 075 sta 67.1 47.7: C1 MBARI cast, 12 bottles to 190m

Cast 076 sta 66.7 50.0: C2 MBARI cast/standard CalCOFI, 21 bottles to 1024m; type II

Cast 077 sta 66.9 52.3: C3 MBARI cast, off line 66.7 slightly for eggs; 1 bottles to 1036m; no samples taken except terminal depth check salt; 600 fathoms charted bottom depth, 1163-1173m logged

Cast 078 sta 66.7 55.0: C4 MBARI cast/standard CalCOFI, 22 bottle cast to 1035m; 2 bottles (#12 & #13) tripped @125m, #13 = mistrip, no samples

Cast 079 sta 66.7 57.5: C5 MBARI cast, 1 bottle cast to 1023; 1000m MBARI Dip; ISUS battery quit after 33m on downcast, back on @~97m; chl max 10-20m, 10m mixed layer

Cast 080 sta 66.7 60.0: C6 MBARI cast/standard CalCOFI, 21 bottle cast to 1034; ISUS battery & cable serviced precast - worked fine; Happy Birthday Bryan!

Cast 081 sta 66.7 62.5: C7 MBARI cast, 1 bottle cast to 1026; 26m chl max, 11m mixed layer

Cast 082 sta 66.7 65.0: C8 MBARI cast, 12 bottle cast to 1025m; using table-driven alternating bottle trips (1,3,5..23); wire out way off

Cast 083 sta 66.7 67.5: C9 MBARI cast, 1 bottle cast to 1025m; wire out plus 43m, winch did not zero at surface at start; chl max 50m

Cast 084 sta 66.7 70.0: C10 MBARI cast/standard CalCOFI, 21 bottle cast to 1022m; zeroed @start but meter wheel offset increased during cast

Cast 085 sta 66.7 72.5: C11 MBARI cast, 1 bottle cast to 1035m; 36m chl max, 26m mixed layer

Cast 086 sta 66.7 75.0: C12 MBARI cast, 12 bottle cast to 1025m; using table-driven alternating bottle trips (1,3,5..23)

Cast 087 sta 66.7 77.5: C13 MBARI cast, 1 bottle cast to 1035m

Cast 088 sta 66.7 80.0: C14 MBARI cast/standard CalCOFI; 21 bottle cast to 1025m

Cast 089 sta 66.7 82.5: C15 MBARI cast, 1 bottle cast to 1026m

Cast 090 sta 66.7 85.0: C16 MBARI cast, 12 bottle not table-driven (wrong .psa setup cfg), tripped 8 bottle at surface to even the load; 46m chl max, 44m mixed layer

Cast 091 sta 66.7 87.5: C17 MBARI cast, 1 bottle cast to 1024m; 32m chl max; 2 fin whales seen on station!!

Cast 092 sta 66.7 90.0: C18 MBARI cast/standard CalCOFI, 21 bottle cast to 1025m; 39m chl max,

Cast 093 sta 60.0 90.0: C19 MBARI cast/standard CalCOFI, 12 bottle cast to 1035m

Cast 094 sta 60.0 85.0: C20 MBARI cast, 12 bottle cast to 1025m

Cast 095 sta 60.0 80.0: C21 MBARI cast/standard CalCOFI, 12 bottle cast to 1025m; MBARI Line 60 scheme noted

Cast 096 sta 60.0 75.0: C22 MBARI cast, 12 bottle cast to 1035m; db vs meters - think about it (?) written by BJO, referring to "1000m cast" perhaps

Cast 097 sta 60.0 70.0: C23 MBARI cast/standard CalCOFI, 12 bottle cast to 1025m; data sheets completely out of order (as usual) noted

Cast 098 sta 60.0 65.0: C24 MBARI cast, 12 bottle cast to 1025m

Cast 099 sta 60.0 60.0: C25 MBARI cast/standard CalCOFI, 12 bottle cast to 1025m

Cast 100 sta 60.0 53.0: C26 MBARI cast/standard CalCOFI, 08 bottle cast to 80m; last sta

Note: some casts were to 1035m, some to 1025m, goals was to be sure to get a 1000m profile & some operators targeted pr some depth. MBARI 1000m casts were every 5nm on Line 67 (66.7) but only standard/time-series CalCOFI stations were fully bottle-samples

JRW 06/05/2018