HOT 368: Chief Scientist Report

Chief Scientist: Fernando Santiago-Mandujano
R/V *Kilo Moana*
November 1-5, 2026

Cruise ID: KM 2614
Vessel: R/V *Kilo Moana*, University of Hawaii
Master of the Vessel: Captain Sorin Rosca
Chief Scientist: Fernando Santiago-Mandujano, University of Hawaii
Marine Technicians: : Trevor Young (lead), Scott Nunnery

1.0 SCIENTIFIC OBJECTIVES

The cruise objective was to maintain a collection of hydrographic and biogeochemical data at the Hawaii Ocean Time-series (HOT) stations.

A copy of the detailed cruise plan is available at:

https://hahana.soest.hawaii.edu/hot/crsplan/HOT_368_cruise_plan_operational.pdf

Science operations were planned for 3 stations, in the following order:

1) Station 1, referred to as Station Kahe, is located at 21° 20.6'N, 158° 16.4'W.
2) Station 2, referred to as Station ALOHA, is defined as a circle with a 6 nautical mile radius centered at 22° 45'N, 158°W.
3) Station 52, the site of WHOTS-22 Mooring (nominal anchor position 22° 40.076’ N, 157° 56.843’ W).

3.0. SCIENCE PERSONNEL

Participant	Title	Affiliation	Citizenship
Hunter Adams	Research Associate	UH	USA
Charles Addey	Graduate Student	UH	NGA
Benedetto Barone	Scientist	UH	Italy
Fernando Carvalho Pacheco	Research Specialist	UH	BRA
Madi Davis	Research Associate	UH	USA
Paige Dillen	Graduate Student	UH	USA
Mike Dowd	Graduate Student	UH	USA
Dan Fitzgerald	Research Associate	UH	USA
Alexis Floback	Post-doc	UH	USA
Devin Hogate	Research Associate	UH	USA
Wing Kwan (Esther) Mak	Post-doc	UMontana	China
Drake Lee-Patterson	Technician	MATE	USA
Nicole Martin	Post-doc	UH	USA
Sofia Matza	Undergrad Student	UH	USA
Loreto Paulino Jr.	Graduate Student	UH	USA
Emily Pinneo	Technician	MATE	USA
Tully Rohrer	Research Associate	UH	USA
Dan Sadler	Research Associate	UH	USA
Fernando Santiago-Mandujano	Chief Scientist	UH	USA
Blake Watkins	Marine Engineer	UH	USA
Scott Nunnery	Marine Technician	OTG	USA
Trevor Young	Marine Technician	OTG	USA

4.0. GENERAL SUMMARY

All the science equipment was loaded on October 30th. We departed on November 1st at 0800. Operations at Kahe Station were conducted as scheduled.

We arrived at Station ALOHA on November 2nd at 0030, later than expected because of the large swell and strong winds (20 to 25 kt from the NE, with gusts up to 30 kt). Because the rough conditions were forecasted to prevail, a decision was made not to deploy the primary production array. The Wirewalker and the HOT and SUBSEA sediment trap arrays were deployed, however the SUBSEA array only included 2 crosses, the additional 3 crosses and instruments (Optodes and optical sediment traps) originally planned to be included in the array were not deployed. The next day, strong easterly winds continued in the 20-25 kt range and consequently a decision was made to cancel the gas array deployment. Primary production incubations of 5-m water from the CTD were conducted onboard in lieu of the primary production array experiment.

A total of twelve 1000-m CTD casts and two near-bottom CTD casts were conducted at station ALOHA, completing the 36-hour CTD burst period. One 200-m CTD yo-yo cast was conducted near the WHOTS-22 buoy. All rosette samples for the core HOT and ancillary projects were collected.

The Wirewalker and the two sediment trap arrays were recovered without incidents. The arrays drifted more than 12 nm NW from ALOHA center. The prevailing easterly winds were between 15 and 20 kt with sporadic rainfall, and rainfall in the distance was observed during the first two days at the station.

Three net tows for the core HOT zooplankton collection were completed during the day and three at night.

One trace metal cast was conducted at station Kahe and 3 were conducted at station ALOHA.

One hyperpro cast was conducted at station Kahe and two at station ALOHA.

Two VPR tows were conducted at Station ALOHA.

The VMP was deployed four times at station ALOHA.

The Snow Catcher was deployed two times at station ALOHA

The 38 kHz ADCPs, underway fluorometer, transmissometer, thermosalinograph and the ship's meteorological suite ran without interruption during the cruise.

An acoustic triangulation of the WHOTS-22 anchor location, as well as a bathymetry survey were conducted before departing from station ALOHA. The resulting anchor location is 22° 40.036'N, 157° 57.00'W, and the mean depth is 4753 m.

5.0. R/V *Kilo Moana* OFFICERS AND CREW, TECHNICAL SUPPORT

The R/V *Kilo Moana* continues to maintain excellent ship support for our work. Captain Rosca and the ship's crew showed flexibility, enthusiasm, concern, and dedication to our scientific mission.

Technical support during this cruise was excellent. OTG personnel were available to assist in our work during the cruise. They were flexible and accommodating.

6.0. DAILY REPORT OF ACTIVITIES (HST)

November 1, 2026

0805 - All aboard. Depart from Pier 35
0819 - Safety briefing, Science meeting followed by fire and abandon ship drills
1050 - Arrived at Kahe Station
1104-1134 - Weight test to 500 m with 1200 lb weight.
1203-1244 - Hyperpro cast
1301-1402 - S1C1 CTD cast to 1020 m
1436-1453 - Trace metal cast
1501 - Transit to ALOHA Station

November 2, 2026

0030 - Arrived at ALOHA Station.
0058 - Wirewalker deployed at 22 44.994'N, 158 4.339'W
0150 - Deployed HOT sediment traps at 22 44.986'N, 158 3.254'W
0241 - Deployed SUBSEA sediment traps at 22 44.94'N, 158 2.2833'W
0433 - Start S2C1, deep CTD cast to 4800 dbar, (PO-1). The altimeter did not work
0612 - At 4800 dbar, 22 45.004'N, 157 59.995'W
0810 - End of cast
0855-0910 - Snow catcher deployment at 22 45.0'N, 157 59.995'W
0929-0954 - Trace metal cast at 22 45.004'N, 157 59.996'W
1042-1203 - S2C2, 1012 m CTD cast (PO-2).
1228-1248 - Net tow
1353-1454 - S2C3, CTD cast to 1020 m (PCPN)
1502 - Transit to pump ship's tanks
1705-1806 - S2C4, CTD cast to 1020 m (PPO4)
1905-1941 - Vertical Microstructure Profiler (VMP) cast
2005-2109 - S2C5 CTD cast to 1020 dbar (BEACH)
2126-2133 - Trace metal cast
2159-2220 - Net tow
2225-2246 - Net tow
2305 - Start S2C6, CTD cast to 1020 dbar

November 3, 2026

0007 - End of CTD cast
0021-0105 - VMP cast
0214-0306 - S2C7, CTD cast to 1020 dbar
0320-0508 - VPR cast
0517-0603 - S2C8, CTD cast to 1020 dbar
0611 - Transit to pump ship's tanks
0712-0753 - VMP cast
0801-0855 - S2C9, CTD cast to 1020 dbar
0930-0938 - Snow catcher cast #2
0956-1021 - Trace metal cast
1049-1140 - S2C10, CTD cast to 1020 dbar
1221-1243 - Net tow
1248-1310 - Net tow
1324-1405 - Hyperpro cast
1407-1504 - S2C11, CTD cast to 1020 dbar (ATP)
1520-1600 - VMP cast
1610 - Transit to pump ship's tanks
1711-1824 - S2C12, CTD cast to 1020 dbar (SUBSEA high-resolution)
1838-1950 - VPR cast
2005-2106 - S2C13, CTD cast to 1020 dbar (HPLC)
2205-2230 - Net tow
2331 - Start S2C14 near-bottom CTD cast (PO-3)

November 4, 2026

0102 - CTD at 4800 dbar, 22 45.026'N, 158 0.035'W
0233 - End of cast
0253 - Transit to recover the Wirewalker
0431 - Start Wirewalker recovery, 22 50.545'N, 158 13.118'W
0510 - End of recovery, 20 kt easterly winds
0512 - Transit to recover HOT sediment traps
0534 - Start HOT sediment traps recovery, 22 51.643'N, 158 12.812'W
0638 - End of recovery, 14 kt easterly winds
0643 - Transit to recover SUBSEA sediment traps
0658 - Start recovery, 22 52.313'N, 158 12.196'W
0716 - End of recovery, 20 kt easterly winds
0730 - Transit to WHOTS-22 buoy
1023-1123 - S52C1, CTD yo-yo cast to 200 m, 5 cycles
1218-1301 - Hyperpro cast
1305 - Start triangulation of WHOTS-22 anchor location
1500 - End triangulation, resulting location 22 40.036'N, 157 57.00'W
1554-1632 Bathymetric survey at the WHOTS-22 anchor location. The mean depth during this survey was 4753 m.
The sound speed profile from the second deep cast (S2C14) was entered into the EM122 before starting the survey.
1636 - Transit back to Pier 35

November 5, 2026

0706 - Arrived at Pier 35. End of cruise.
Full offload except for the trace metal van, which was offloaded on November 6, 2026.

7.0 HOT program sub-components:

Investigator	**Project**	**Institution**
Angelicque White	Core Biogeochemistry	UH
Dave Karl	Biogeochemistry	UH
John Dore	Biogeochemistry QA/QC	MSU
James Potemra	Hydrography	UH
Mike Landry	Zooplankton dynamics	SIO
Ricardo Letelier	Optical measurements	OSU
Craig Carlson	Dissolved Organic Carbon	UCSB
Al Plueddemann/James Potemra	WHOTS mooring	UH/WHOI

8.0 Ancillary programs:

Matt Church	Diversity and activities of nitrogen-fixing microorganisms	UM/FLBS
Andrew Dickson	CO_2 dynamics and intercalibration	SIO
Paul Quay	$DI^{13}C$	UW
Angelicque White	C-STAR, UVP, IFCB, Hyper-BB backscattering sensor.	UH
Debbie Lindell	Seasonal Virus Sampling	Technion
Andrew Hirzel	Video Plankton Recorder	UH
Paige Dillen Fernanda H. Freitas Angelicque White	Leveraging the Hawaii Ocean Time-series program for validation of the PACE Mission in oligotrophic waters	UH
Alexis Floback Nick Hawco	SUBSEA – trace metal sampling	UH
Nicole Martin Nick Hawco	Attempt trace metal clean urea uptake measurements. Urea amended uptake rates	UH
Benedetto Barone Matt Church	SUBSEA	UH
Drake Lee-Patterson Emily Pinneo	MATE internship program	UNOLS