PE22_03_Thrash: Microbial DO respir

Detailed cruise plan

Ship/port

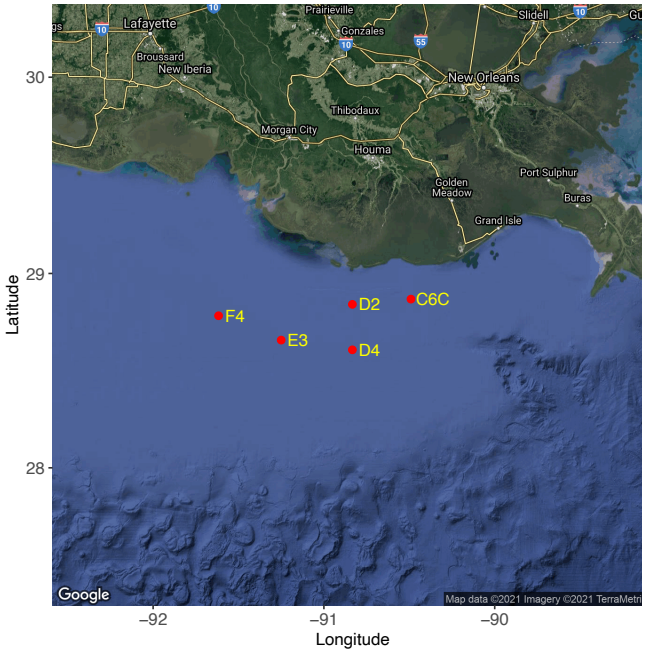
R/V Pelican
Departure: Louisiana Universities Marine Consortium (LUMCON), Cocodrie, LA
Return: LUMCON

Dates

Mobilization: 08/02/21
Departure: 08/03/21
Return: 08/08/21
Demobilization: 08/09/21
Duration: 6 days at sea

Science party

J. Cameron Thrash, Ph.D., Chief Scientist
Jordan T. Coelho, Ph.D. student
V. Celeste Lanclos, Ph.D. student
Nicole R. Ratib, Ph.D.
Diana Bojanova, Ph.D. student
University of Southern California



Station map

Waypoints

Station	Lat	Long	Depth (m)
C6C	28.8686	-90.4903	19.2
D2	28.8417	-90.8333	15.6
D4	28.6083	-90.8333	19.1
E3	28.6583	-91.25	22
F4	28.7833	-91.6167	24.2

Cruise track and timing

We will proceed from LUMCON to station C6C, conduct science operations (detailed below), then proceed to D2, D4, E3, and finally F4, repeating scientific operations at each station. After operations are concluded at station F4, we will sail back to LUMCON. The table below contains approximate distances and travel times for this cruise track.

Start	End	Approx. distance (n miles)	Approx. transit time (@ 8 kts)
LUMCON	C6C	26	3 hr 15 min
C6C	D2	18	2 hr 20 min
D2	D4	14	1 hr 45 min
D4	E3	22	2 hr 45 min
E3	F4	21	2 hr 40 min
F4	LUMCON	72	9 hr

Science operations
At each station, we will be performing casts of the CTD/Niskin rosette to collect a station water column profile and discreet water samples at the bottom (variable) and at the surface (2 m). We will use half the Niskins for bottom water collection, and half for surface water collection.

Water will be apportioned for filtration, flow cytometry, bottle incubations, and cryostocks, according to the **Science operations schematic** on the next page. We will be conducting bottom water incubations in an electric dry cold incubator that we will bring with us. Surface water incubations will be conducted in a light-proof tub connected to the surface water flow through system in the aft starboard section of the main lab.

Once incubations have begun and sufficient water has been collected for filtration, we can leave the station and begin transit to the next if necessary. The longest incubations will be for the respiration measurements (up to 24 hrs), but we have two sets of bottles so that we can begin a second set of incubations before the first set concludes. Thus, our only limiting factor for collection at a new station is whether the incubations from two prior stations have finished. However, given the relatively short transit times and the fact that we only have 5 planned stations, we anticipate staying on station for most of each day, and we may elect to perform additional CTD/Niskin rosette casts for additional sample filtration.

Liquid N2. Many of our material collections will be placed in cryovials and then stored in dry shippers. Dry shippers are charged with liquid N2, but don't contain any liquid N2, and will remain in the main lab. We may bring an additional liquid N2 dewar for extra storage. These will be filled on the dock during mobilization from a large liquid N2 supply dewar. We would like to bring the large parent liquid N2 dewar aboard the ship for easy recharging of the storage dewars. This will also prevent the need to order a second supply dewar. Marshall Kormanec will order the liquid N2 supply dewar for delivery prior to mobilization.

Hazardous Materials. In addition to the liquid N2, the other hazardous materials we will be bringing are glutaraldehyde (25%), hydrochloric acid (38%), and sodium hydroxide (5N). Glutaraldehyde will be used as a fixative for negative controls in our respiration and redox sensor green incubations. It will be diluted into stock solutions, and these will be added to incubation bottles either in the fume hood or outside on the deck. Hydrochloric acid and sodium hydroxide will be diluted to 0.1N for use in cleaning/sterilizing filtration tubing and incubation bottles. All three of these chemicals will be stored in secondary containment in their concentrated form.