Assessment:

1. To what extent were the planned science objectives of this cruise met?

rating: 71%-80%

comment:
Due to losing more than 50% of our dive time to weather (sustained winds over 20 kn for 5+ days), we could not complete all of the primary objectives of the funded projects. Specific objectives not met: (1) One of the major objectives for NSF project OCE-1737017 was to conduct 2-4 day incubations within the CORK hydrothermal fluids. We were only able to achieve one 6-hour incubation, which may not be long enough to see a signal in our experiments. (2) A major objective of NSF project OCE-1851582 and linked awards was the collection of replicate large volume fluid samples and in situ filters from three CORK horizons. Thankfully there was at least one sample collection from all horizons, but due to loss of dives, only one horizon was sampled more than once, and only minimal sampling was possible at one horizon (i.e. it was not sampled for viruses). Otherwise, the ship performed exceptionally well, as did ROV Jason (as reported in separate PCAR for ROV Jason). Secondary objectives of collecting water column samples was possible during some inclement weather.

2. Rate how well the science party contributed to achieving the scientific objectives of this cruise (pre-cruise planning, communication, adequate personnel, equipment, attention to safety, organization, etc.).

rating: Excellent

comment:
The science party engaged in regular planning meetings prior to cruise and had a detailed scientific prospectus to guide our planned logistics and shipboard work. A complicating factor was the extreme delay in receiving official funding for companion project OCE-1851582 and linked awards due to the government shutdown, with awards only becoming official about one week before the cruise. Although the majority of our science party had never been to sea before, our pre-cruise meetings helped everyone to orient to what to expect, and our in-port safety training ensured that all were prepared before we got underway (one minor comment – the orientation checklist was geared for an Alvin cruise, and not a Jason cruise, which mainly only mattered for finding the right server links and email groups).
3. Rate how well ship operator pre-cruise activities (planning, coordination, and logistics) and shore support contributed to achieving the scientific objectives of this cruise.

**rating:** Very Good

**comment:**
Pre-cruise planning activities were well looked after by WHOI, with kind thanks to Sarah Fuller. One annoying and complicating factor was the lack of a ship’s agent in Newport to help with coordinating shipping logistics, acquisition of dry ice, etc. This responsibility fell to the chief scientist to arrange independently, which was again made difficult by the extreme delay in official funding of the co-PI group.

4. Rate how well the ship operator supplied scientific equipment and marine technicians supported this cruise (appropriate equipment, equipment operational and ready for cruise, calibrations, documentation, technicians trained and familiar with equipment).

**rating:** Very Good

**comment:**
Both SSSGs are commended for their efforts at sea. One minor issue with ship operations included a recurring problem with the dissolved oxygen sensor on the CTD Niskin Rosette. The SSSGs were attendant to the issue and worked to resolve that the sensor data (i.e. voltage readings) were actually correct, but that an error with the calculation algorithms was causing the processed data to look spiky. The issue was not resolved with the vendor during the cruise, but manual processing of the data generated smoothed profiles. Another minor issue discovered during dive J2-1141 was competing navigation software being run from Alvin Top Lab during Jason navigation operations, which confounded the Jason nav file. Luckily, since all our dives were at known fixed coordinates, this was not an issue for our dive program. The top lab nav program was shut down and the issue was resolved. This maybe should be added to future Jason cruise SSSG checklists, to prevent issues when transitioning between Alvin/Jason ops?

5. Rate how well the scheduling of this cruise supported achieving the scientific objectives of this cruise (appropriate ship, year, season & dates, communications regarding schedules, online systems and scheduling process).

**rating:** Fair

**ship requested:** Global

**comment:**
The original proposal requested ship time in late summer, when weather in this region is the best it can be. Due to conflict with OOI scheduling, our cruise was bumped into early May without any additional days added to the dive program to account for weather (only one weather contingency day had been requested in the proposal, versus the 5.6 days we experienced, which was more than 50% of our operational time). We were able to accomplish many of our objectives due to incredibly efficient dive planning and high performance of the ROV Jason, but there were significant losses to our science program from the weather days. Also, although it did not impact on our science operations, I feel compelled to comment that it seems like a bad use of resources to have our Jason cruise mobbed before an OOI cruise that required Jason off the deck, to be followed by another OOI cruise with Jason needed. Why not have the OOI mooring cruise first, and then mob Jason to stay on board? Considering the extremely high demand for the Jason group, and the amount of effort to mob/demob this asset, this kind of scheduling makes no sense to me.

6. Rate the level of safety in shipboard and science operations (safety briefing and instructions, procedures & equipment).

**rating:** Very Good

**comment:**
I would rate this section as Excellent with the exception of the fact that we had to watch two separate harassment prevention videos – that seems a bit excessive.
7. Rate how well the officers and crew and the manner in which the research vessel was operated contributed to achieving the scientific objectives of this cruise (communications, ship handling, deck procedures, attitude towards the science objectives, training, adequate number of crew, shipboard routine, etc.).

**rating:** Excellent

**comment:**
I have nothing but kudos and thanks to the ship’s captain, officers, bosun, deck crew, engineers, and galley crew. Everyone had a can-do attitude. I tried my best to schedule launches/recoveries at convenient times to prevent overtime and conflict with meals and breaks.

8. Rate how well the research vessel and its installed equipment contributed to achieving the scientific objectives of this cruise (material condition, readiness, living conditions and habitability, condition of lab spaces, design, layout, deck equipment, winches, cranes, frames, propulsion, power, etc.).

**rating:** Excellent

**comment:**
nothing to report, everything was working well.

9. **Number of science days lost:**

due to weather: 5.67

due to ship equipment:
due to ship science equipment:
due to user science equipment:
due to medevac/diversion

**comment:**
Several days with sustained winds above 20-25kn.