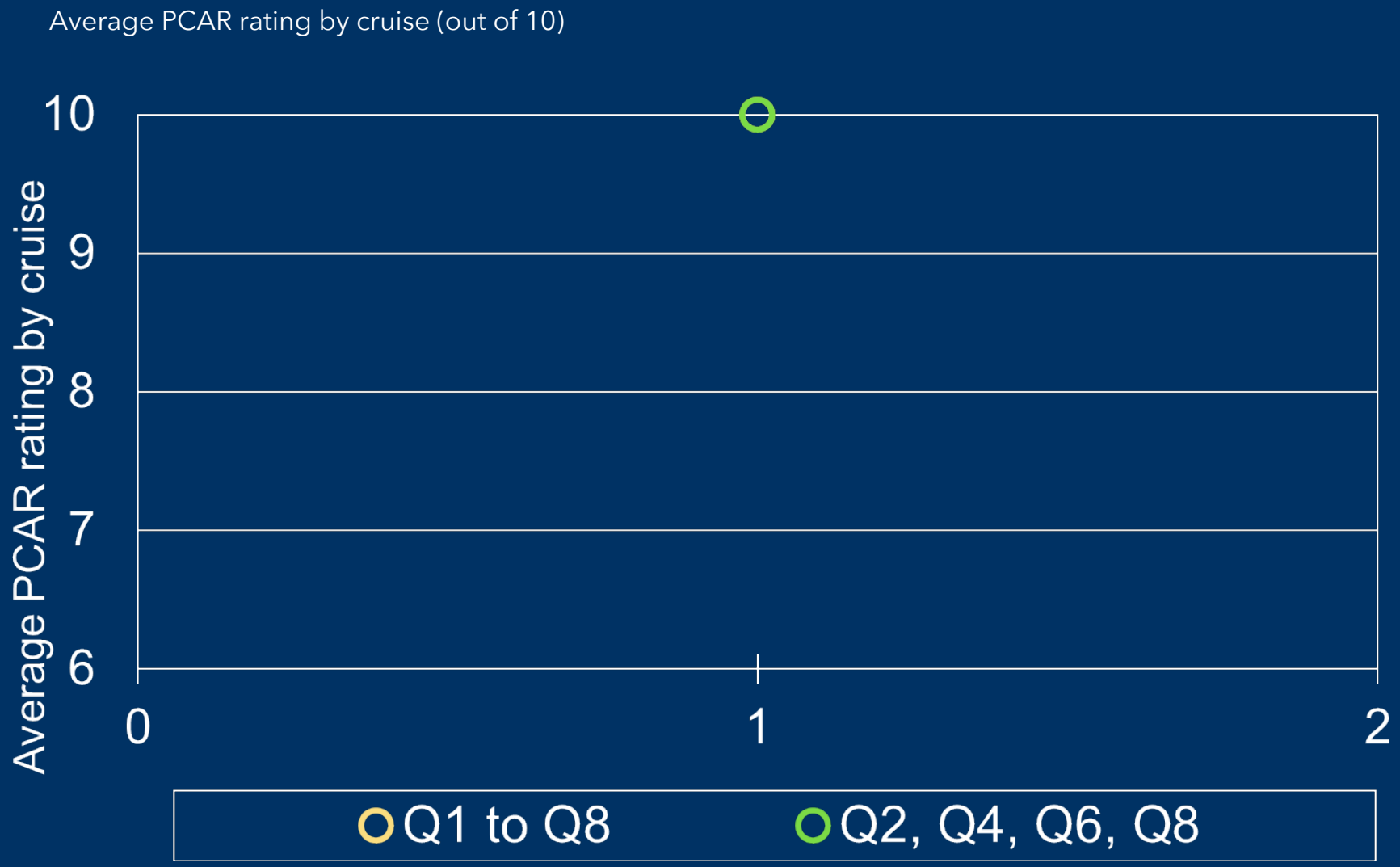
Alvin PCARs

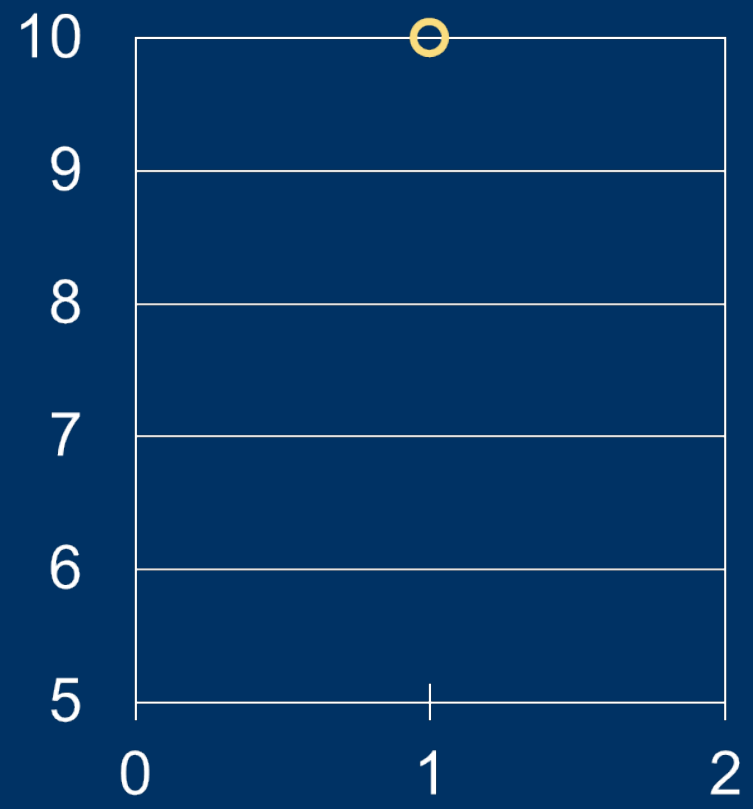
1. To what extent were the planned science objectives of this cruise met?
2. **Rate the effectiveness of the vehicle operations team's pre-cruise activities.**
3. Rate how well the science party contributed to achieving the scientific objectives of this cruise.
4. **Rate how well the vehicle's supplied scientific equipment functioned during this expedition and marine technicians supported this cruise.**
5. Rate the level of safety in vehicle operations.
6. **Rate how well the EL, vehicle team, and vehicle operations contributed to achieving the scientific objectives of this expedition.**
7. Rate how well the ship and its installed equipment contributed to achieving the scientific objectives of this expedition.
8. **Rate the ease, quality, and completeness of data transferred by the vehicle operators at the end of the cruise.**

Alvin PCARs


Average PCAR rating by cruise (out of 10)
Average PCAR rating by cruise
10
9
8
7
6
0
1
2
Q1 to Q8
Q2, Q4, Q6, Q8

Alvin PCARs

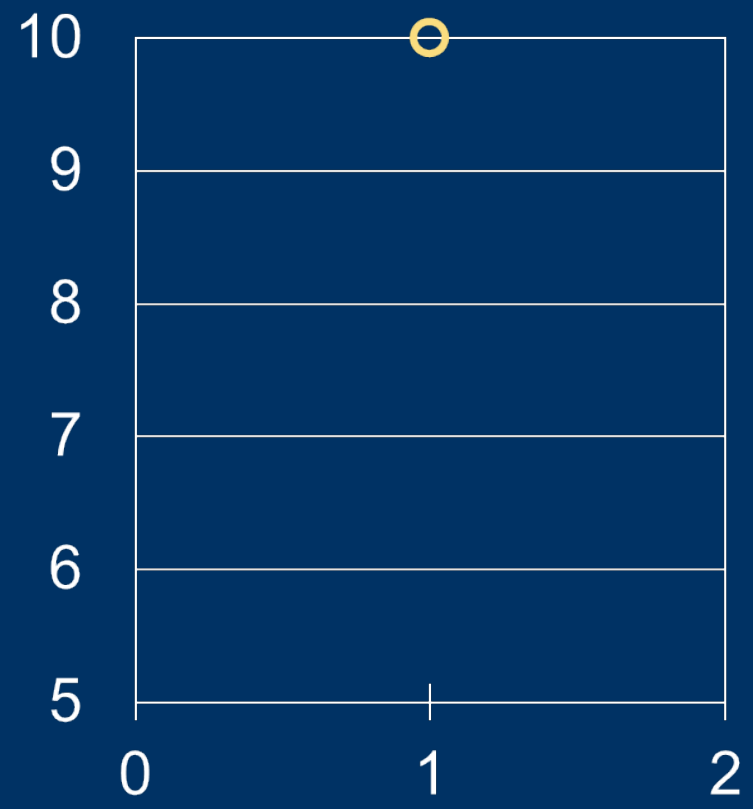
Q2. Effectiveness of pre-cruise activities
mean = 10, min/max = 10/10



- Pre-cruise activities were highly effective. We had good communication with the Alvin team before the cruise that contributed to a smooth expedition.

Alvin PCARs

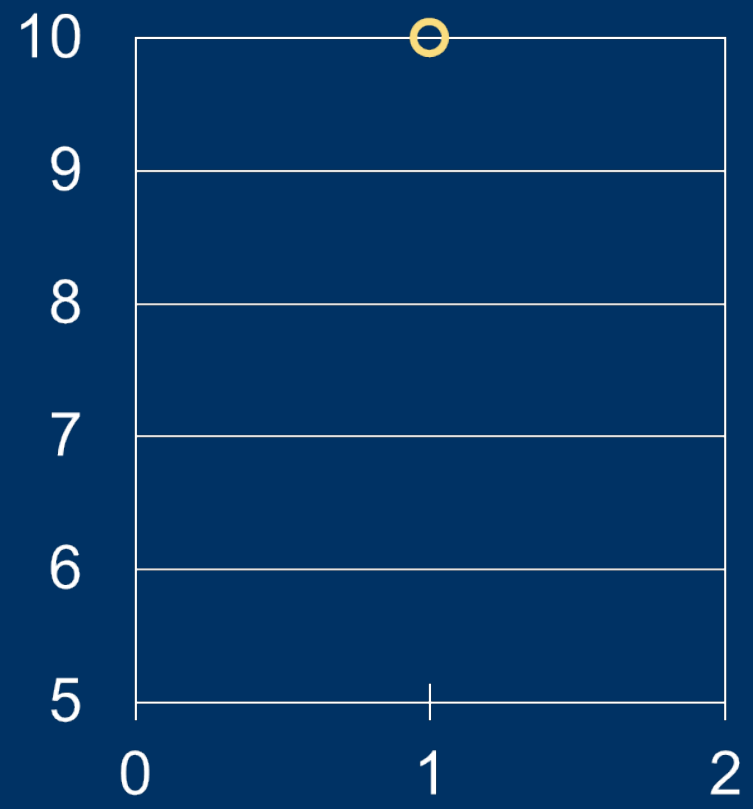
Q4. Vehicle-supplied scientific equipment
mean = 8.75, min/max = 8/10



- Vehicle equipment worked well. There were some minor equipment glitches as expected given the time since last deployment, but all was made to function when needed.

Alvin PCARs

Q6. Expedition leader, vehicle team, and vehicle operations
mean = 9.75, min/max = 9/10

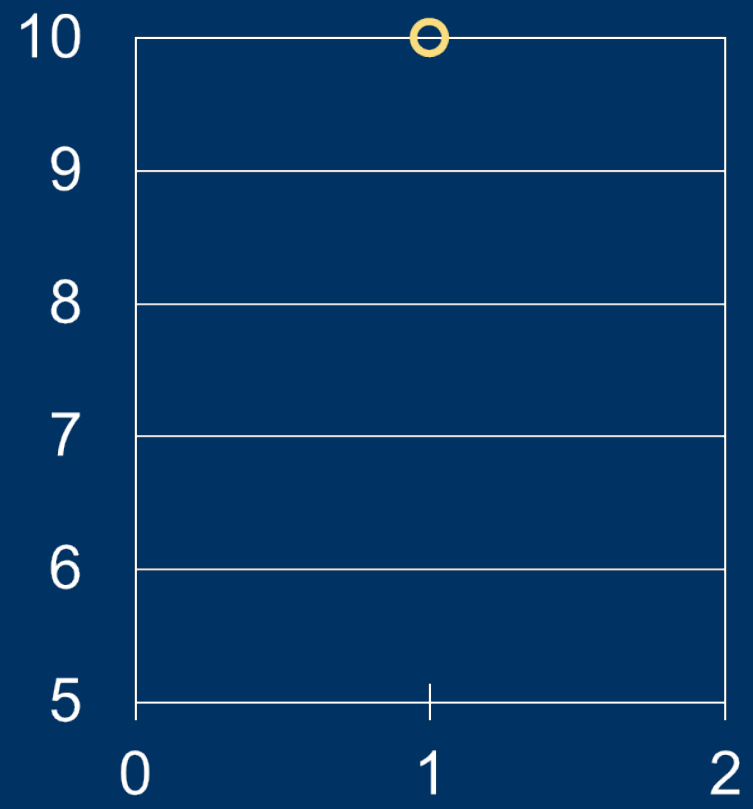


- From top to bottom, the Alvin team worked with the scientists to achieve the scientific objectives. This was aided by excellent communication between the entire Alvin team and the science team.

Alvin PCARs

Q8. Data transfer

mean = 8, min/max = 7/10



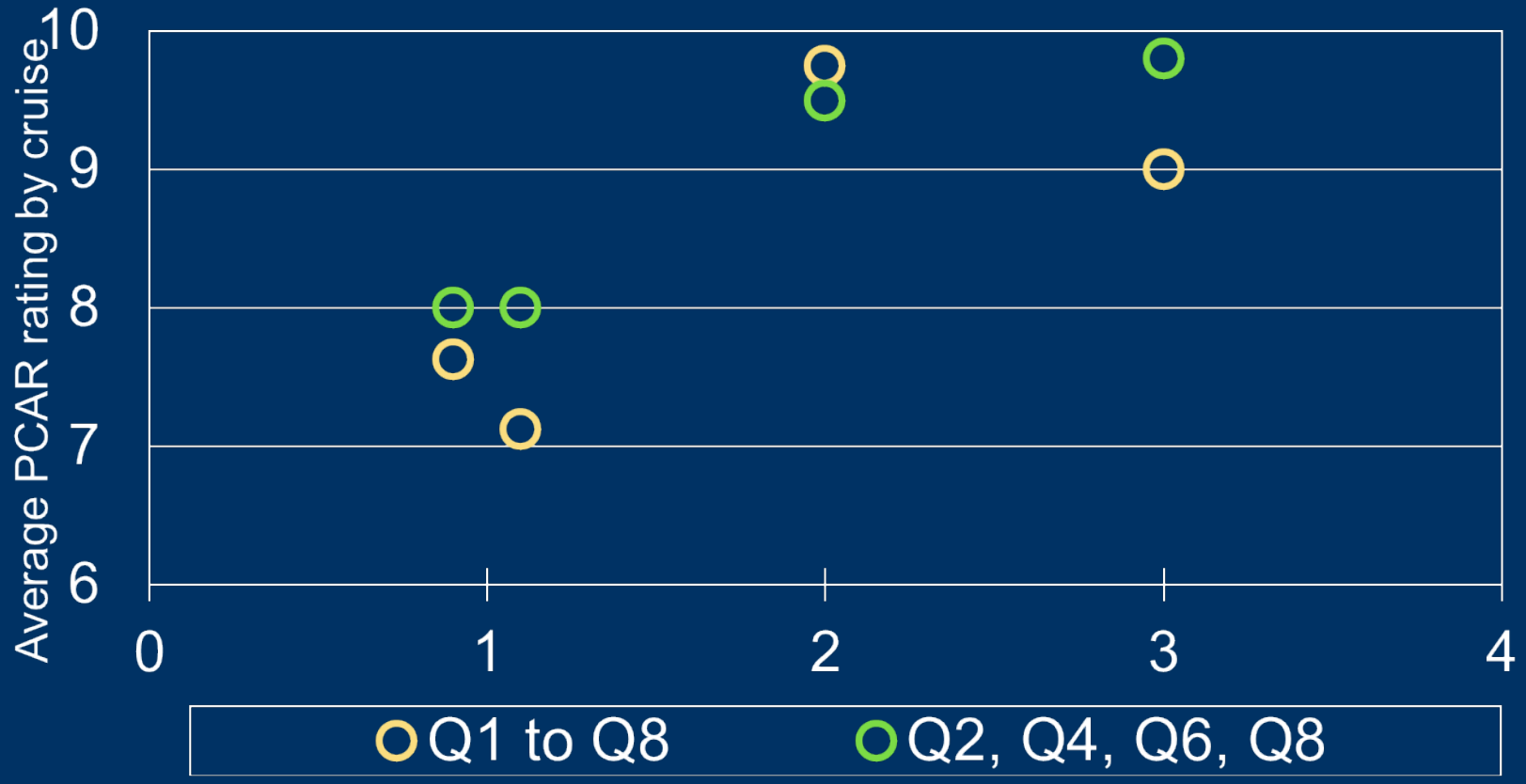
- Data handover went smoothly. Thus far data mining has not revealed any issues of concern.

Jason PCARs

1. To what extent were the planned science objectives of this cruise met?
2. **Rate the effectiveness of the vehicle operations team's pre-cruise activities.**
3. Rate how well the science party contributed to achieving the scientific objectives of this cruise.
4. **Rate how well the vehicle's supplied scientific equipment functioned during this expedition and marine technicians supported this cruise.**
5. Rate the level of safety in vehicle operations.
6. **Rate how well the EL, vehicle team, and vehicle operations contributed to achieving the scientific objectives of this expedition.**
7. Rate how well the ship and its installed equipment contributed to achieving the scientific objectives of this expedition.
8. **Rate the ease, quality, and completeness of data transferred by the vehicle operators at the end of the cruise.**

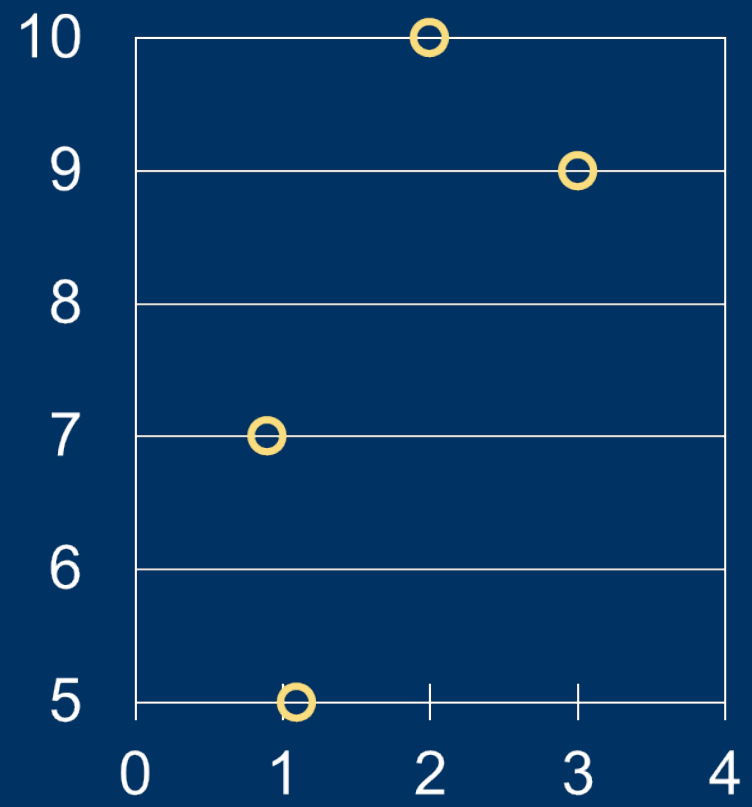
Jason PCARs

Average PCAR rating by cruise (out of 10)



Jason PCARs

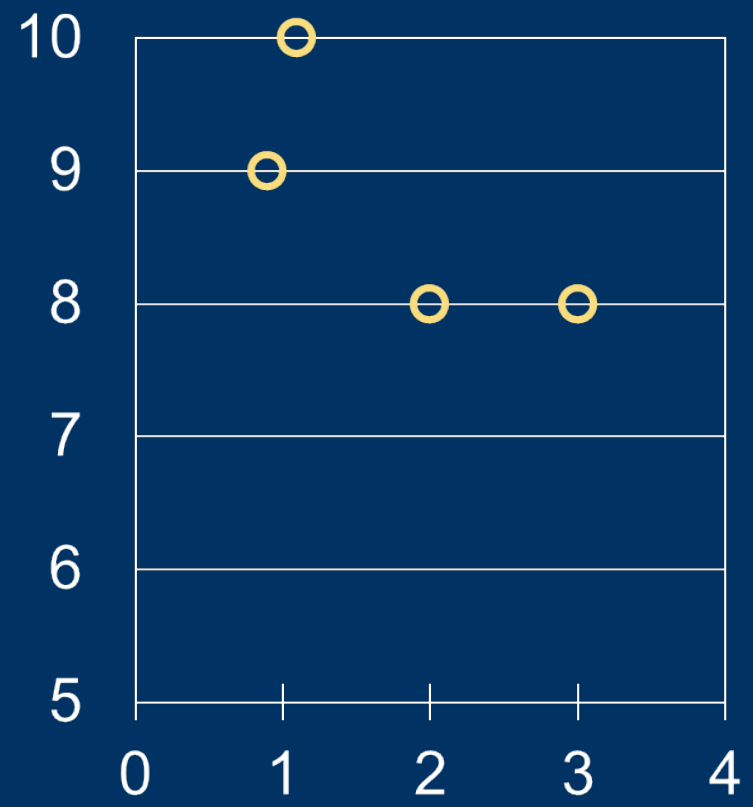
Q2. Effectiveness of pre-cruise activities
mean = 7.75, min/max = 5/10



- Pre-cruise planning was in general fine, though it was clear that communications between Scripps ship ops and Ship's agent in Guam were very poor […]. At this time – against my advice – the decision to use the old, damaged Scripps cable for Jason operations was made. This should have never been allowed and the voice of the chief scientist should have been considered instead of dismissed as this had a major impact on the outcome of our cruise.

Jason PCARs

Q4. Vehicle-supplied scientific equipment
mean = 8.75, min/max = 8/10



- Aside from faulty cable, everything that the Jason Group supplied worked out fine. Clearly they work well as a team.
- There were issues with the Jason manipulators that forced 3 dives to be aborted.
- The vehicle worked great, with these few exceptions: (1) The Reson multibeam sonar had communications problems when it was mounted on the vehicle for 1 dive and could not be resolved after 8 hours of troubleshooting. In the end, we chose to have AUV Sentry collected the multibeam data that we had planned for Jason to collect, which was probably a better idea in the end anyway (so this did not impact our science).
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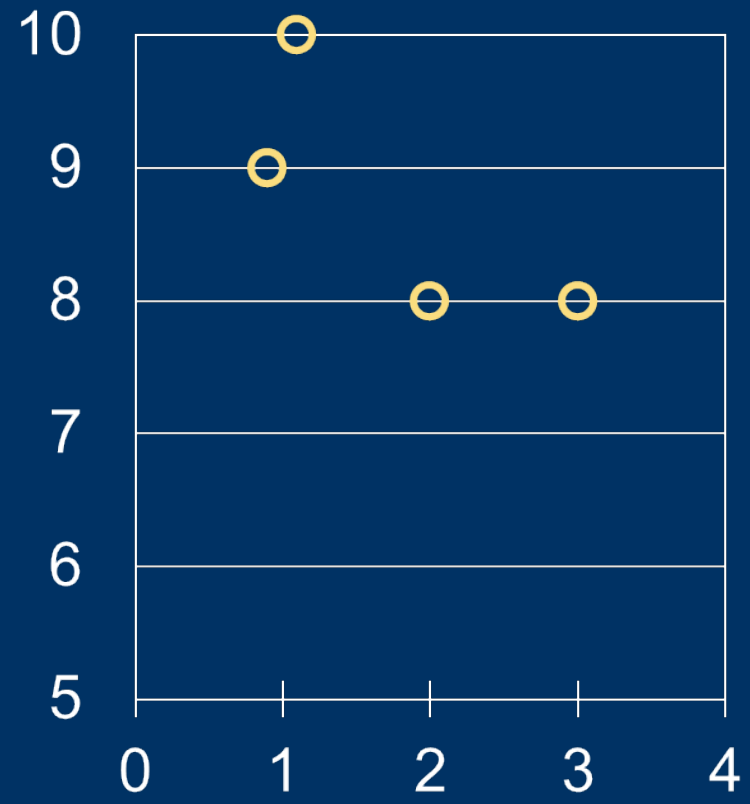
Jason PCARs

Q4. Vehicle-supplied scientific equipment
mean = 8.75, min/max = 8/10



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•2) The hydraulic ram on the Jason basket failed and caused a dive to be aborted, and an 8-hour repair was needed before the dive could be resumed. (3) The Jason elevator did not release on command after it was deployed to perform the USBL calibration […] and required a Jason "bounce dive" to recover the elevator. The feet of the elevator were also somewhat stuck in the muddy bottom, but it was unclear how much of a problem that was since the anchor did not release until manually tripped by Jason.

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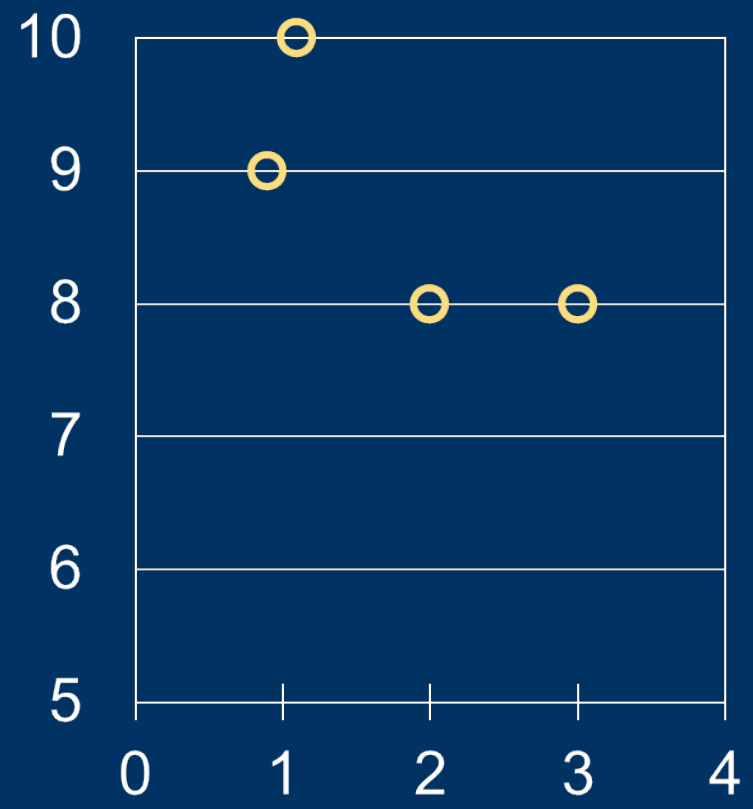
Jason PCARs

Q4. Vehicle-supplied scientific equipment
mean = 8.75, min/max = 8/10



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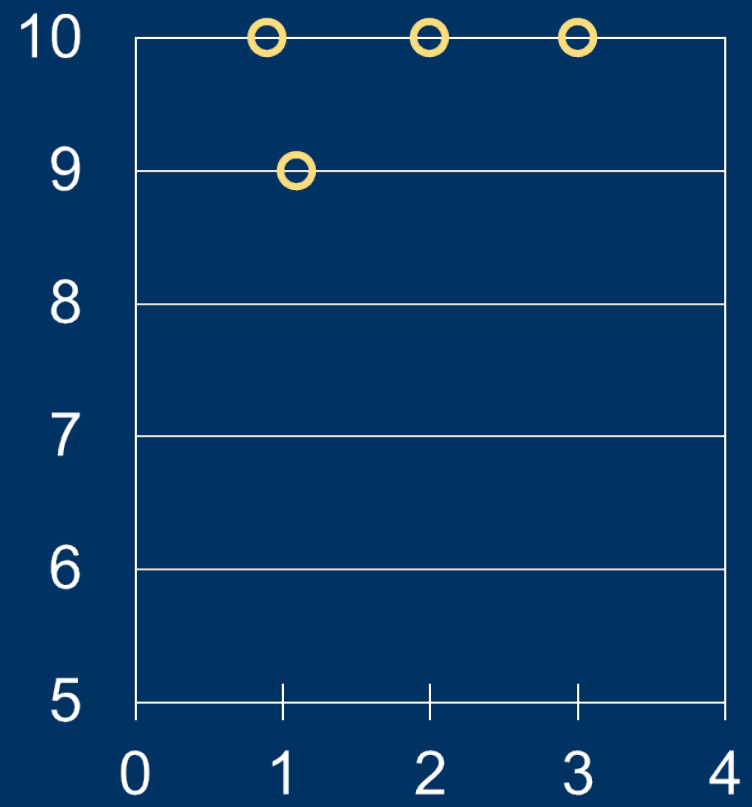
•The USBL calibration was performed by the Sentry team on board and took 14 hours to complete (from elevator deployment to the 1st attempted elevator release), considerably longer than the 6-8 hours that had been previously estimated by the Jason team. It was unclear to me why it took so long and whether this is the "new normal" or not.

Jason PCARs

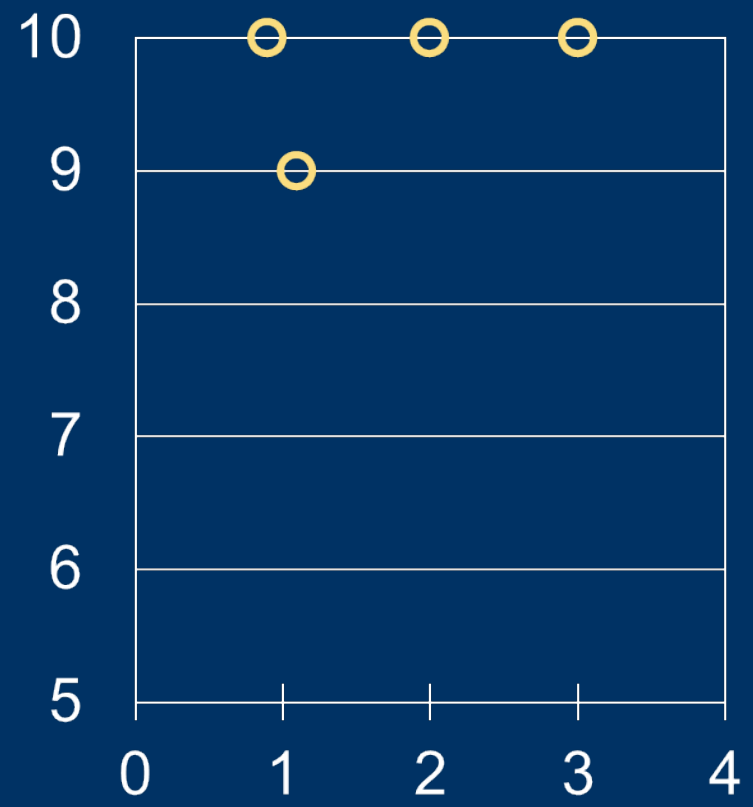
Q6. Expedition leader, vehicle team, and vehicle operations
mean = 9.75, min/max = 9/10



- The EL communicated well with the Chief Scientists throughout the cruise and the entire Jason crew on board worked well above and beyond their normal high level to help us achieve as much as we could after the cable failure. This included the difficult dead vehicle Media/Jason recovery, multiple tests of the damaged cable, spooling off and cutting over 4000 m of the cable and storing it on the deck of the ship (very difficult and dirty work), and making sure Jason and Medea were ready to dive again as soon as possible. In general, I can't say enough about the hard work and professionalism of the Jason team, and the EL in particular. The word "heroic" comes to mind.

Jason PCARs

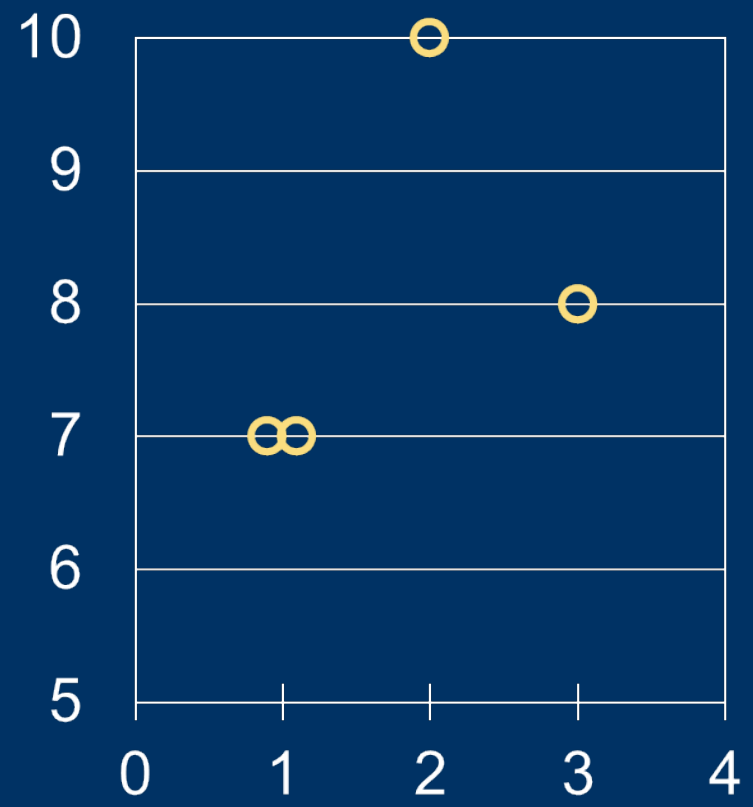
Q6. Expedition leader, vehicle team, and vehicle operations
mean = 9.75, min/max = 9/10



- Expedition leader, and the entire Jason team, did an excellent job of supporting our science objectives.
- [*It was*] highly valuable [*when conducting dual vehicle ops*] to have leaders of both Jason and Sentry operations team who have worked together a lot previously. When Jason or Sentry ops had to be rapidly changed, there was a level of understanding between the vehicle team leaders that made the transition very smooth and got the vehicles back in the water ASAP.

Jason PCARs

Q8. Data transfer
mean = 8, min/max = 7/10

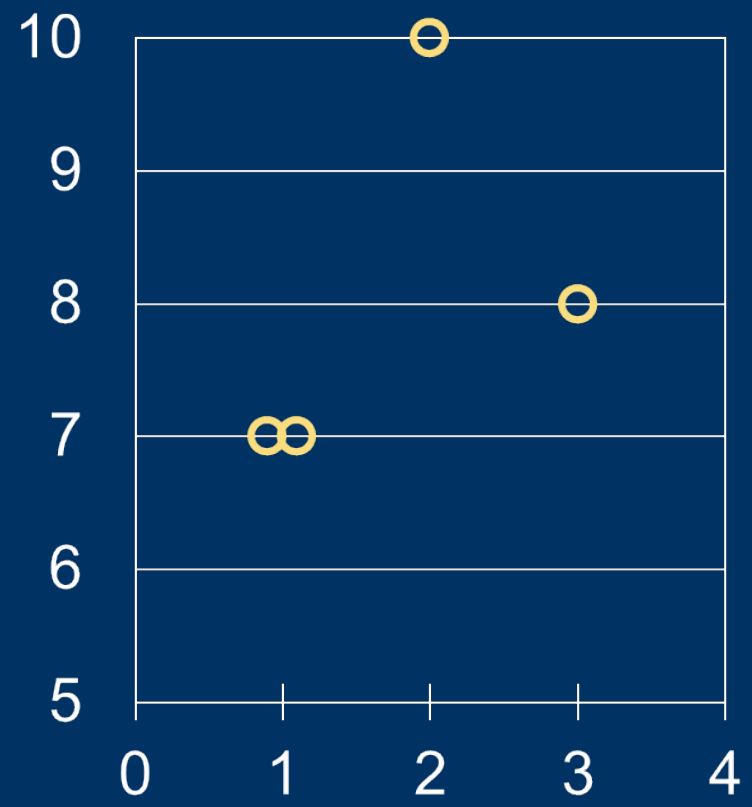


- The H264 Jason digital video files are delivered in such a way that it is extremely cumbersome to display them with overlay information (Date, Time, Depth, Heading, etc.) that is often critical to science users so that they can be understood in a geographical context […] The science users should not have to spend hours and hours after a cruise just to get data overlays to appear on the Jason video. This is not acceptable and is a step backward from the old days with DVDs (that had data overlays!).

- Another improvement since my last Jason cruise […] is that the H264 continuous video files are now automatically generated in the .mkv format with the data, time, position, etc overlays embedded in the subtitle tracks. Very good improvement.

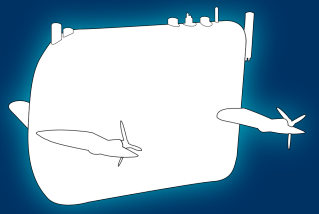
Jason PCARs

Q8. Data transfer
mean = 8, min/max = 7/10



- My only complaint is that generally it still took to long to get the dive data to the science party (navigation, imagery, and video data) after a dive. Our experience was better than on my previous Jason cruise, but I think the Jason team should aim for providing this data within 24 hours after a Jason dive - and this has been achieved by other data techs on previous Jason cruises, but on this cruise it more often took several days. I think this is an important issue for quality control of the data during the cruise, for future dive planning during the cruise, and to provide imagery and video for Education and Outreach efforts.

Sentry PCARs



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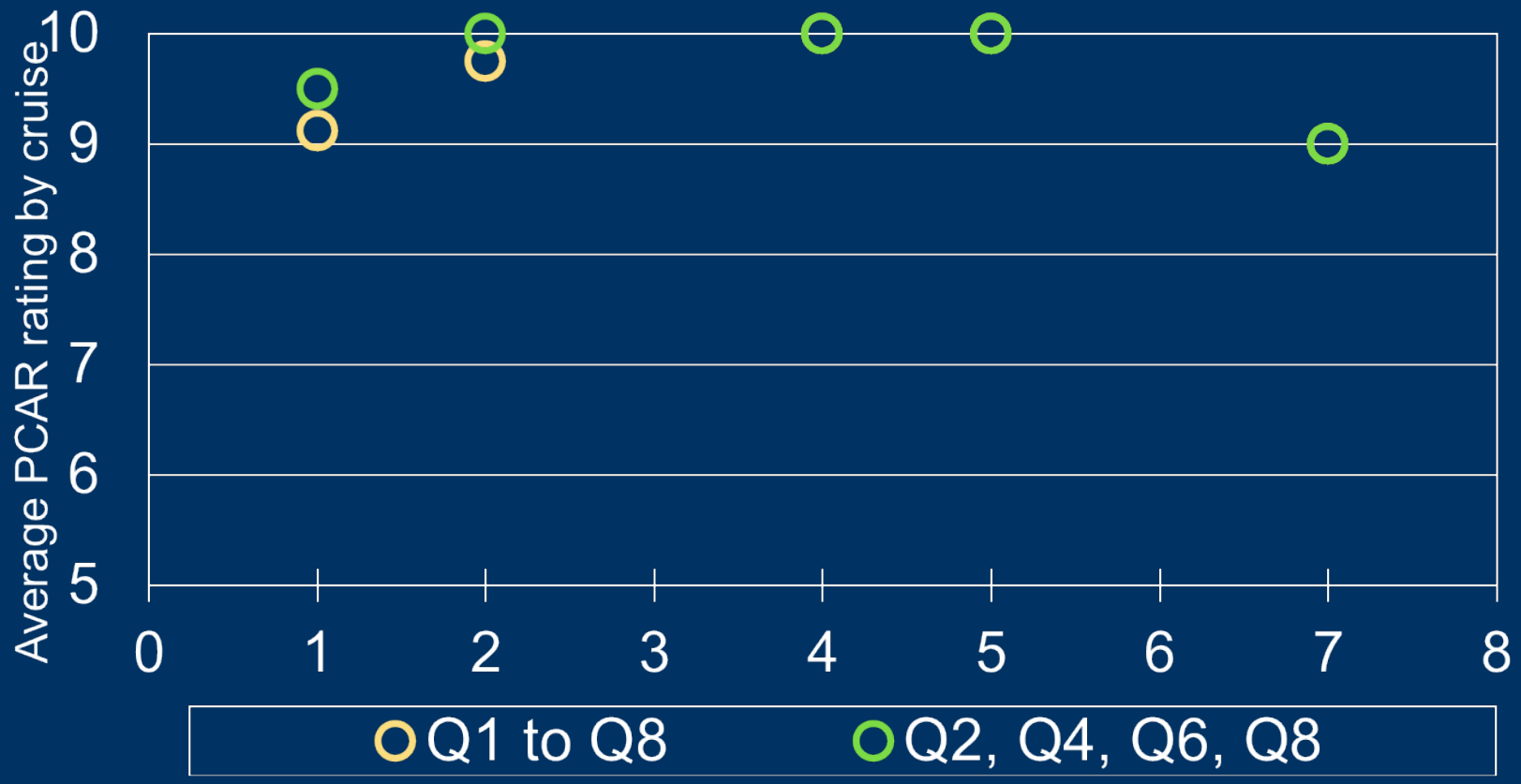
Sentry PCARs

Average PCAR rating by cruise (out of 10)



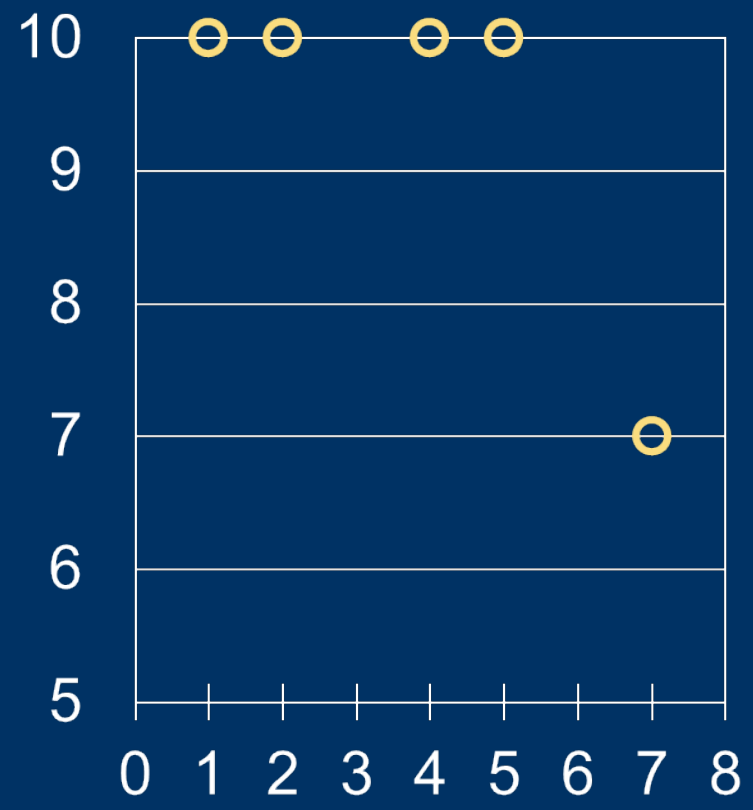
Sentry PCARs

Q2. Effectiveness of pre-cruise activities
mean = 10, min/max = 10/10

- Carl Kaiser visited Newport and Seattle in the months before the cruise, and we were able to design an effective cruise plan together.
- I rated this *10* mainly because how the team has evolved and matured since 2011 cruise (which was almost a complete failure).
- The Sentry group and Carl Kaiser were very helpful in ensuring we had the right supplies such as external hard drives to facilitate data transfers as well as adding additional environmental sensors to the vehicle.

Sentry PCARs

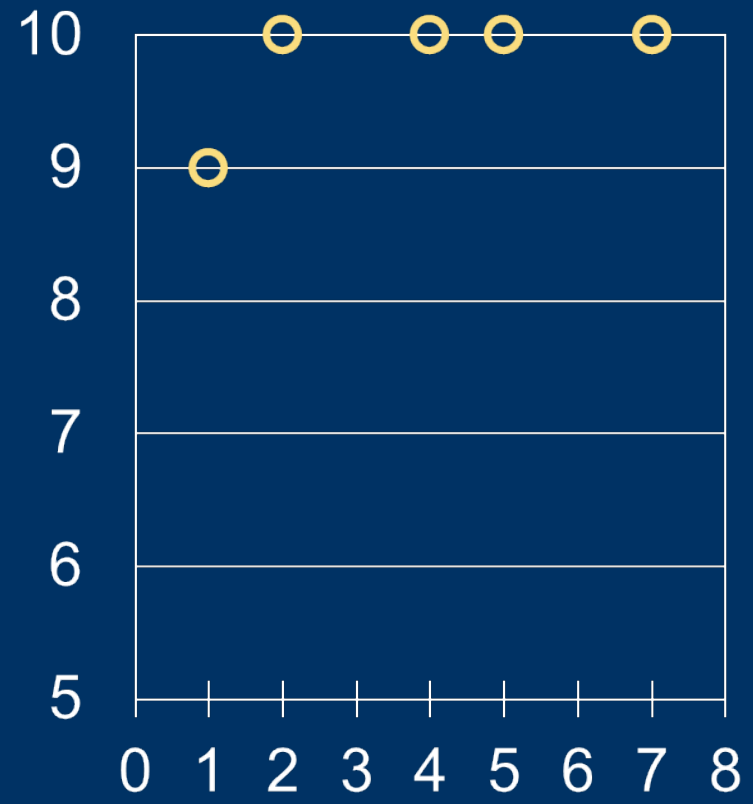
Q4. Vehicle-supplied scientific equipment
mean = 9.4, min/max = 7/10



- The vehicle performed very well, but during the first two dives the Reson multibeam sonar did not function properly…I must say the Sentry team's efforts were extraordinary and much appreciated to resolve the sonar problem as soon as possible. After the sonar was fixed, we had 4 Sentry dives that collected great multibeam sonar data.
- The photos were better than what we expected and close to what we were hoping for…We were also impressed with the area we were able to cover during a normal dive.

Sentry PCARs

Q6. Expedition leader, vehicle team, and vehicle operations
mean = 9.8, min/max = 9/10



- …the Sentry team were very understanding, flexible, and patient in dive planning as it was very important that we involved [*someone*] back on shore in this process…The one aspect of this process that remains somewhat unclear to me is how much processing of the multibeam mapping has to be done for dive planning, and how much the Sentry team can contribute to that process.

- The team was very well organized. I would like to emphasize that personnel is THE asset of Sentry team/NDSF. Corporate memory amongst the NDSF-ABE-Sentry line is imperative to make future AUV expeditions successful. I hope NDSF will make its very best effort to retain and grow the team.
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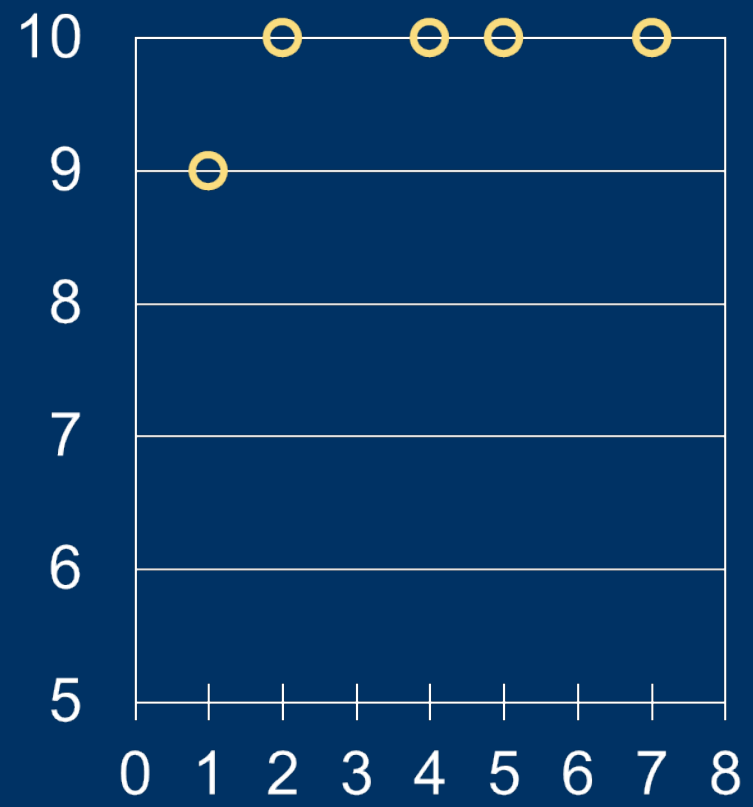
Sentry PCARs

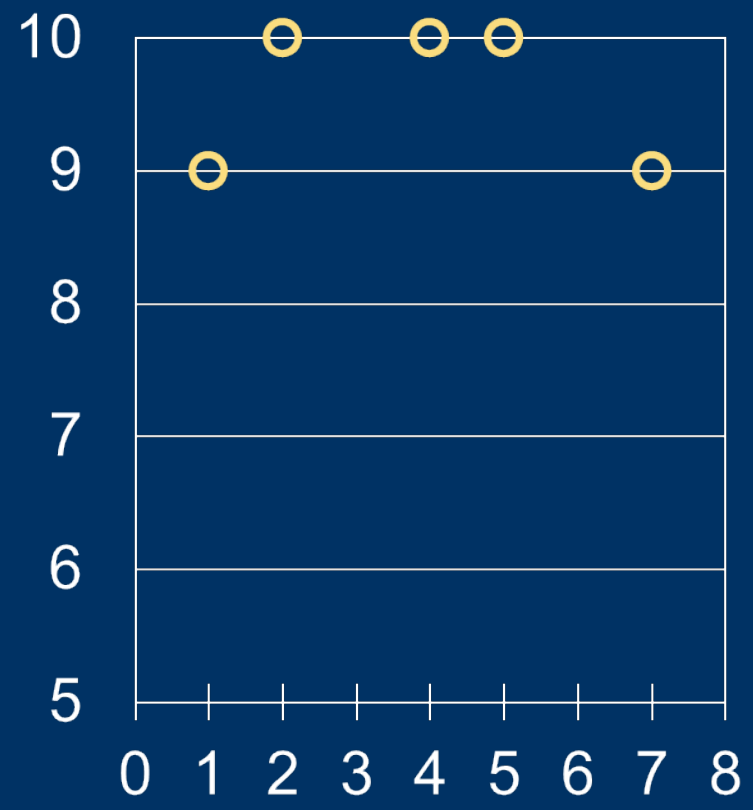
Q6. Expedition leader, vehicle team, and vehicle operations
mean = 9.8, min/max = 9/10



- Dana's leadership of the Sentry team was inspiring. The Sentry team were excellent with operations. communications between the Jason team, restech, science party and ship's crew/captain were excellent. I was very impressed at the Sentry team's willingness to get the vehicle in the water regardless of the timing.

Sentry PCARs

Q8. Data transfer
mean = 9.6, min/max = 9/10



- Data transfer (and protcol set for generating cruise data) was excellent.
- Data transfer was easy and everything was as we expected it would be. The one item worth mentioning was the long amount of time it took processing the photos, and more specifically adding the overlays of requested navigation data to each photo.
- No issues.