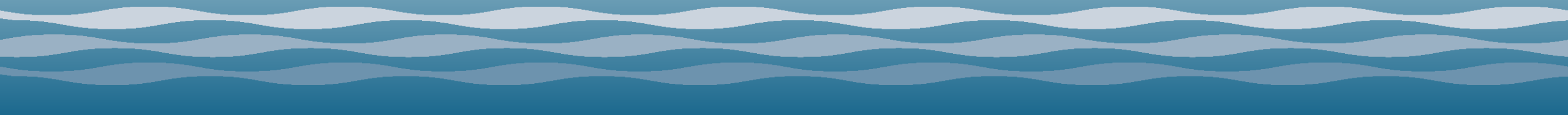




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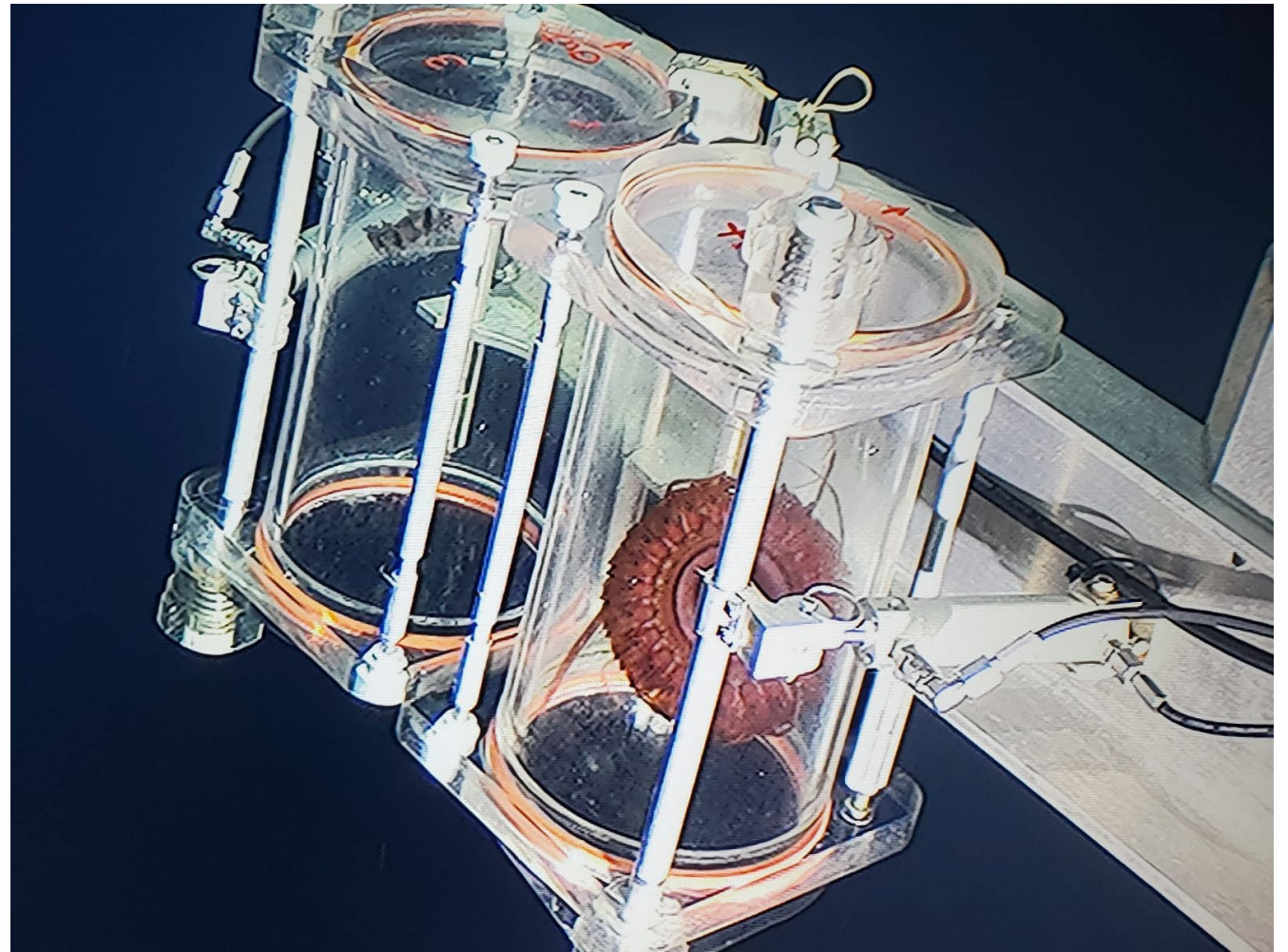
6000-meter ROV Odyssey – Built for Science

- Two – Orion Extended Reach 7P Manipulators
- 7 Thrusters
- Customizable tool skids
- Through frame lift capability with integrated docking systems and two (2) hydraulic load releases
- Swing arms
- Extra power, serial, ethernet and hydraulic functions available
- Precision navigation aiding sensors - INS, DVL, Paro Depth, Altimeter



Science Tools

- CTD +
 - Chlorophyl, Florescence Dissolved Oxygen Sensors and a Red C-Star Transmissometer
- 4K Video – live over fiber
- Stereo IP HD Video
- High Resolution Digital Stills
- Suction Sampler, D-Samplers
- Push Cores
- Bio Boxes
- Scoops, Nets
- Individual sample tubes for genetic samples
- Retractable tray
- Etc. Etc.





State of the Art Video for Primary Data Sets

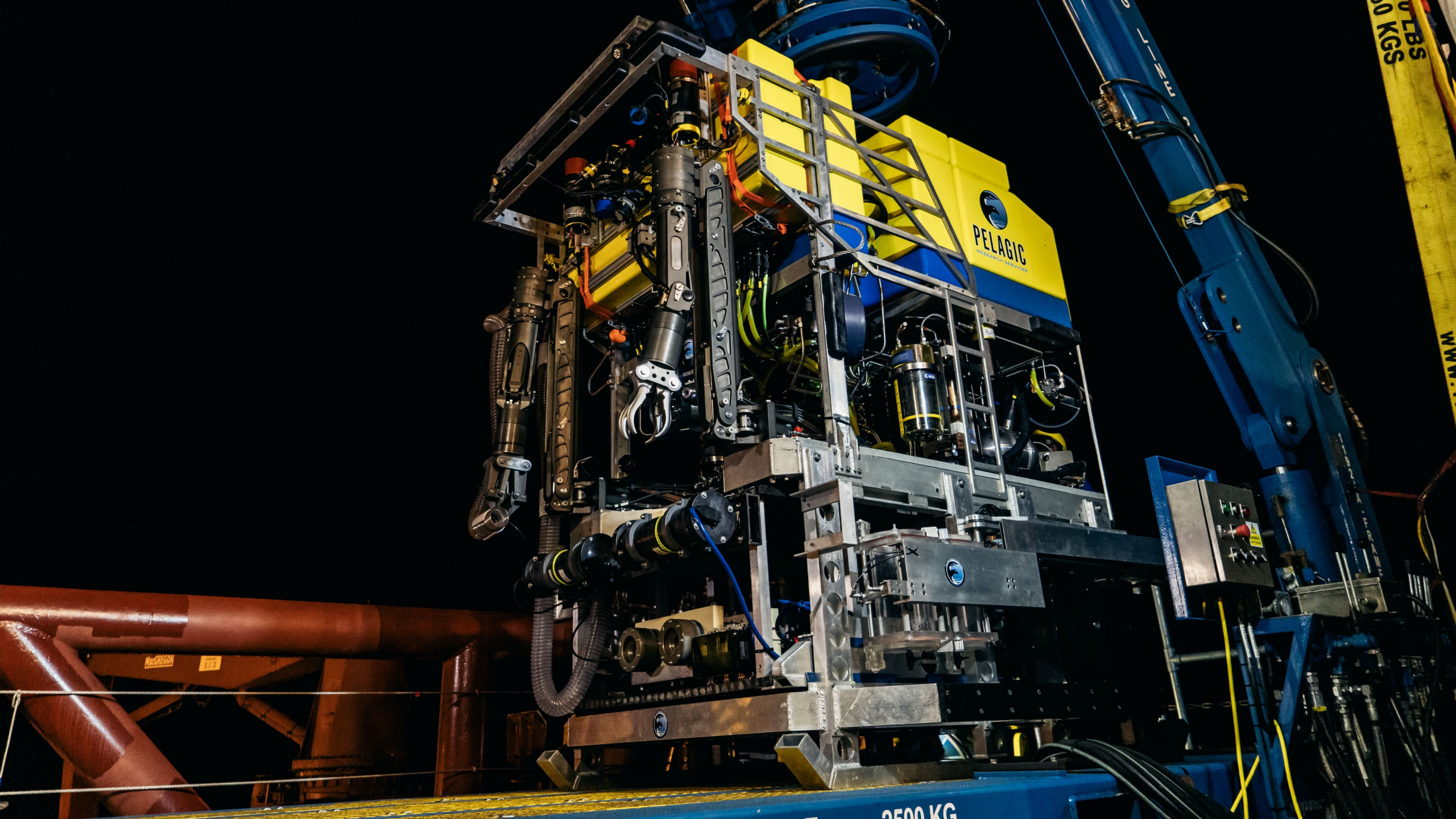
- 4K Video transects – Full Resolution – PRO RES Codec 4.2.2
- Stereo IP HD Cameras – Raw Video – simultaneous Pro Res Codec 4.2.2
- Down converted 4K to HD to allow easy viewing
- Digital stills with synchronized dual strobes for bottom transect images – RAW JPEG (50 MP)
- Time synchronization across all data sets
- Audio annotation
- Closed captioning for overlay
- Simultaneous Duplicate Recording for back-up and distribution to science team and client





- Hydramec LARS
- 7500 meters of FIBRON Umbilical
- Extensive spares for remote operations





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100 LBS
45 KGS

2500 KG

➤ 2021 – COVID and Other Challenges mixed with Success

- Delay in executing NSF funded OBN work with WHOI – ROV Equipment and ship capability issues prevent success - 2022 will see reduced scope completed
- Supply chain issues (computer chips) cause critical board redesign and delay in readiness. Causes postponement of ONC maintenance trip to 2022.
 - Fortuitous as weather would have prevented offshore operation for >80 percent of allocated time
- 80 days performing deep-sea multi-disciplinary science operations
 - 100's of hours at depths greater than 4000 meters
 - 35,000 raw Jpeg still images during 30 km of benthic transects at .6 meters off of seafloor at 4300 meters
 - 100's of hours of mid-water transects from 50 to 4200 meters
 - Dozens of mid-water animals collected
 - Dozens of benthic megafauna collected
 - >240 TB of pro res 4K and stereo HD video transects and general imagery collected

➤ 2022 – NSF funded OBN Project and Ocean Networks Canada







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