

ALVIN Update

- May 2013: *Alvin* loaded in Woods Hole; *Atlantis* transit to Astoria, OR
- Three ROV cruises during the summer
- Limited access to *Alvin* during the ROV cruises





ALVIN Update



Sea Trials 1

31 Aug – 20 Sep 2013

AT26-05

- Authorization to conduct manned testing received 13 Sep
- Main life support test was accomplished but during following initial deck test of the emergency system a leak was discovered within an EBA and the test was ended early
- The EBA leak was located but as a precautionary measure all installed EBAs were removed and leak tested
- The EBA system was retested SAT on 18 Sep
- No further testing was accomplished and the vehicle was secured for the following ROV cruise

ALVIN Update

Sea Trials 2

21 Oct – 19 Nov 2013

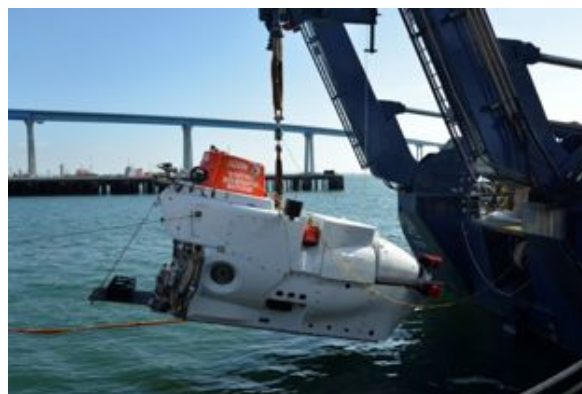
AT26-07

- Cruise delayed one week awaiting NAVSEA approval for manned, in-water tethered and inclining testing
- During the delay, the Observation and Assist Vehicle (OAV) and shipboard hydro winches were tested during three-day AT26-07 Leg A



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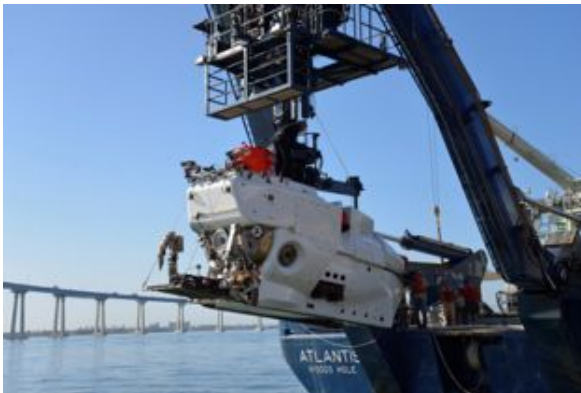
- Following approval, tethered testing commenced on 2 Nov
- Inclining testing was completed on 3 Nov



Air weight: ~ 44,500 lbs (including crew) Payload: +/- 2,370 lbs

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- After the inclining tests, the results were reviewed by NAVSEA on 4 Nov. Approval to conduct untethered harbor dives was granted and four harbor dives were conducted on 5 Nov. All pilots were requalified at that time.



- *Atlantis* departed 6 Nov on Leg B, open ocean trials

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Dive Areas

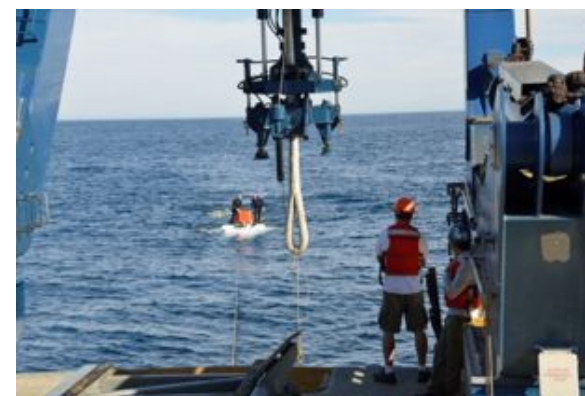
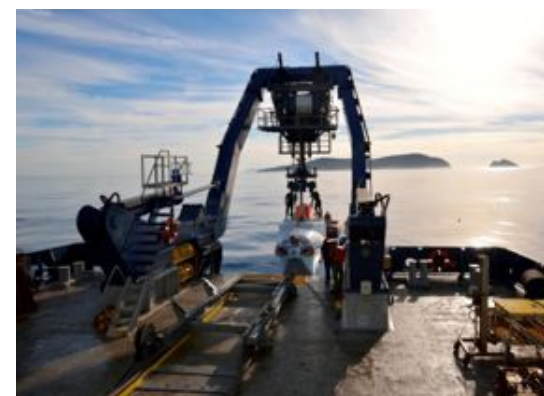




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- 3 dives were completed in Area A to a maximum depth of 1,600m. Primary problems encountered were grounds.





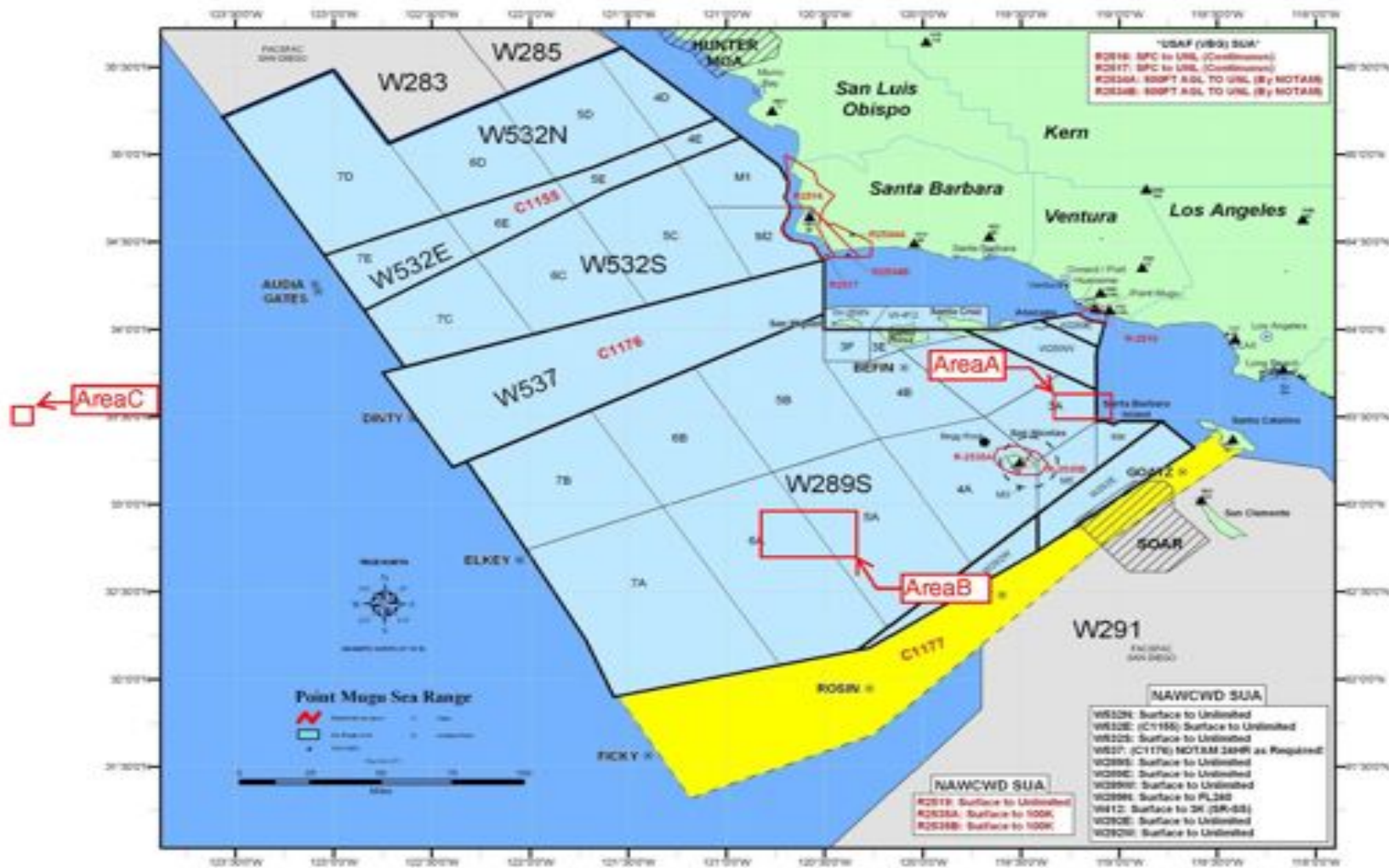
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- Moved to Area B and commenced an initial dive from 1,100m to 2,200m
Problems encountered:
 - Grounds
 - Weight dropper failure
 - Variable ballast pump box flooded causing a crack
 - Flooded thrusters
- The following day while on station conducting repairs we were contacted by Naval Surface Fleet forces and told that we were in a live fire range and to leave the area.
- Departed area and stood off Catalina Island for 3 days conducting repairs and trying to sort out clearance issues.

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Conflict Areas





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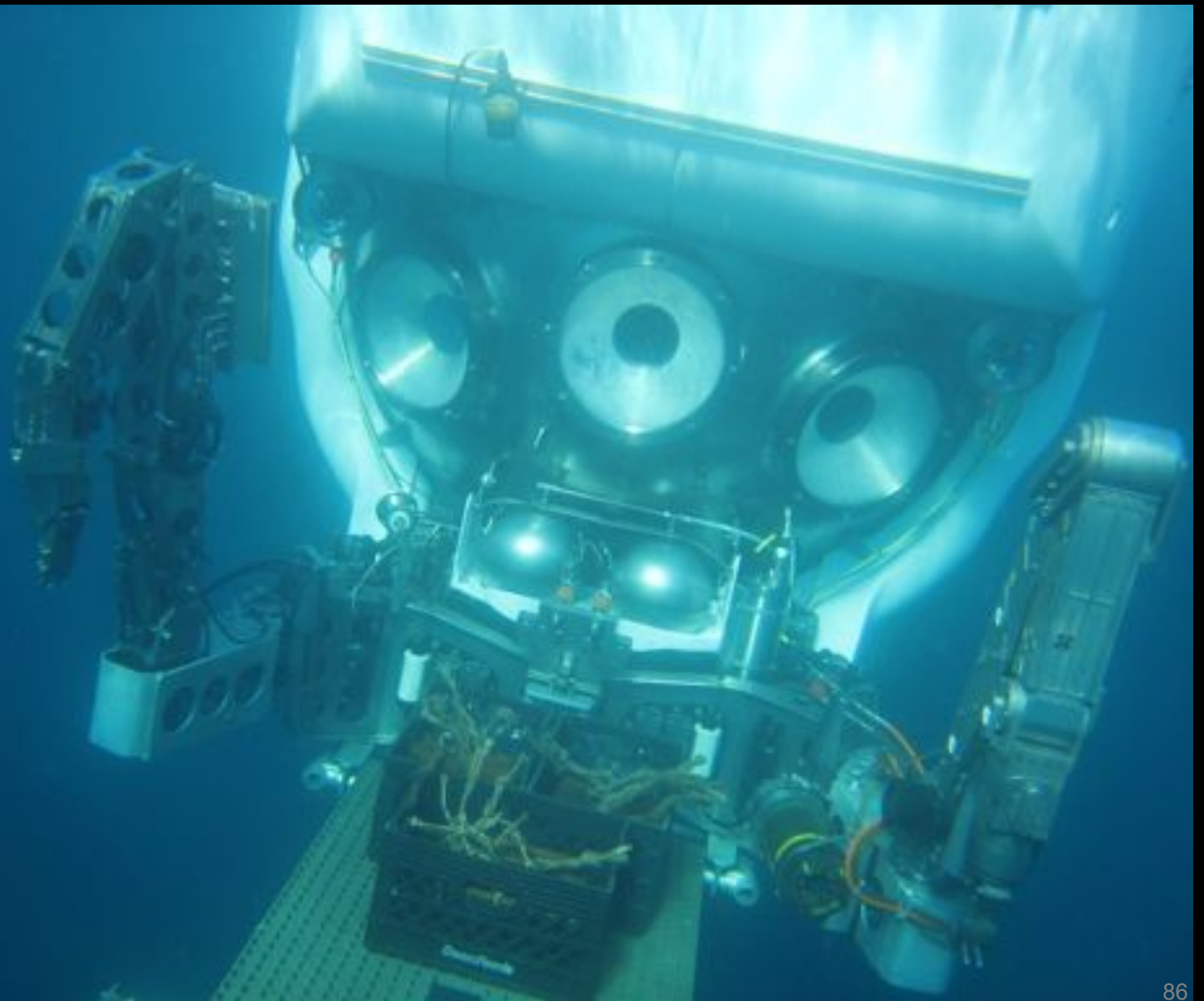
- Repairs took longer than expected. We decided to retest all weight droppers IAW Sea Trial guidelines to verify them. An additional day was needed for this testing.
- Repairs to the cracked VB hydraulic pump box also delayed trials as this was not discovered until the box itself was being refilled after flushing the flooded pump motor.
- Following repairs, clearance issues had still not been resolved so we returned to the unrestricted part of Area A. During the last of the two shallow dives there (200-300m) the sub was working well but we discovered a failure of the ship's A-frame anti-swing ram chroming during recovery warm ups. *Alvin* was successfully recovered despite the problem.
- NAVSEA permission to continue was required, adding a one day delay while a departure from specification was approved.



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- Permission to reenter Area B was granted by the range controller for Monday, 18 Nov. Dive 4678 began in 2,200m of water and proceeded down slope to 3,729m. The sub experienced a ground in the 120V system, so the affected battery was secured and the dive continued. The vehicle transited approximately 4.5 km on the remaining battery. The NAVSEA certification rep was in the sphere for this dive.
- Due to the A-frame ram issue, the distance to our proposed 4,500m dive site (450 nm), and the requirement for returning the vessel to San Diego in time to mobilize *Jason* and *Sentry*, trials activities were terminated after Dive 4678.
- The depth reached during this dive is sufficient to meet all known 2014 science depth requirements.





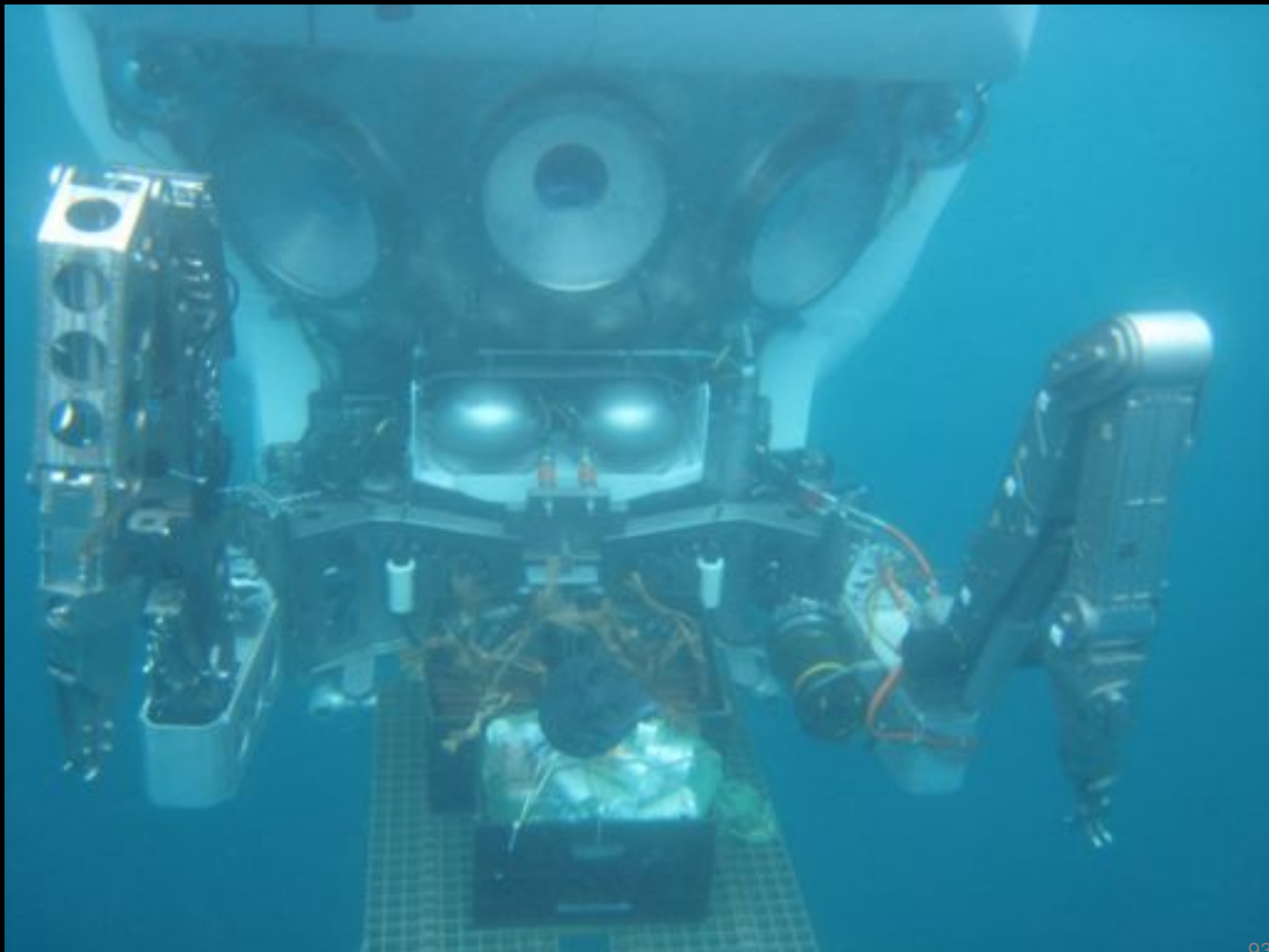


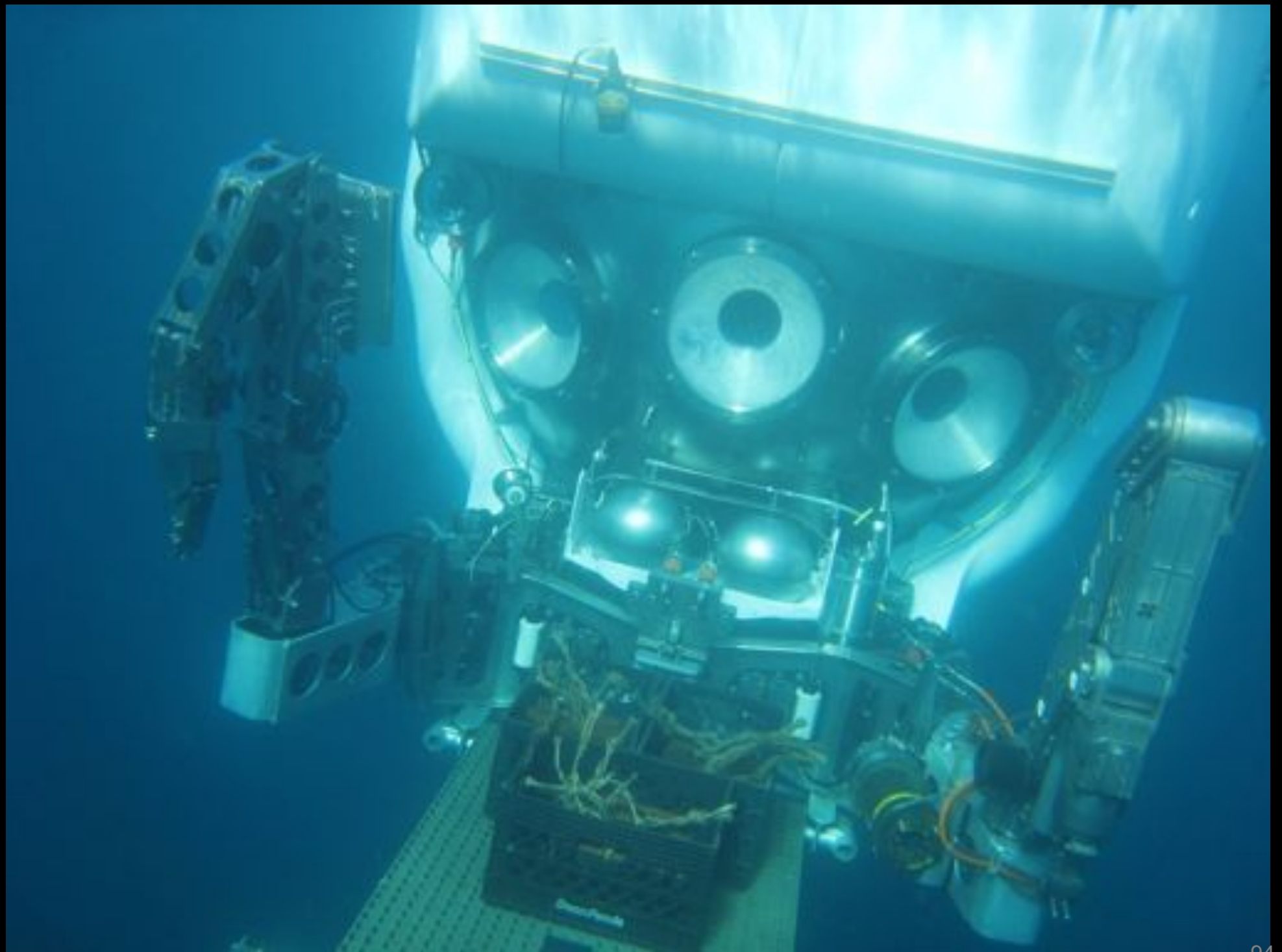


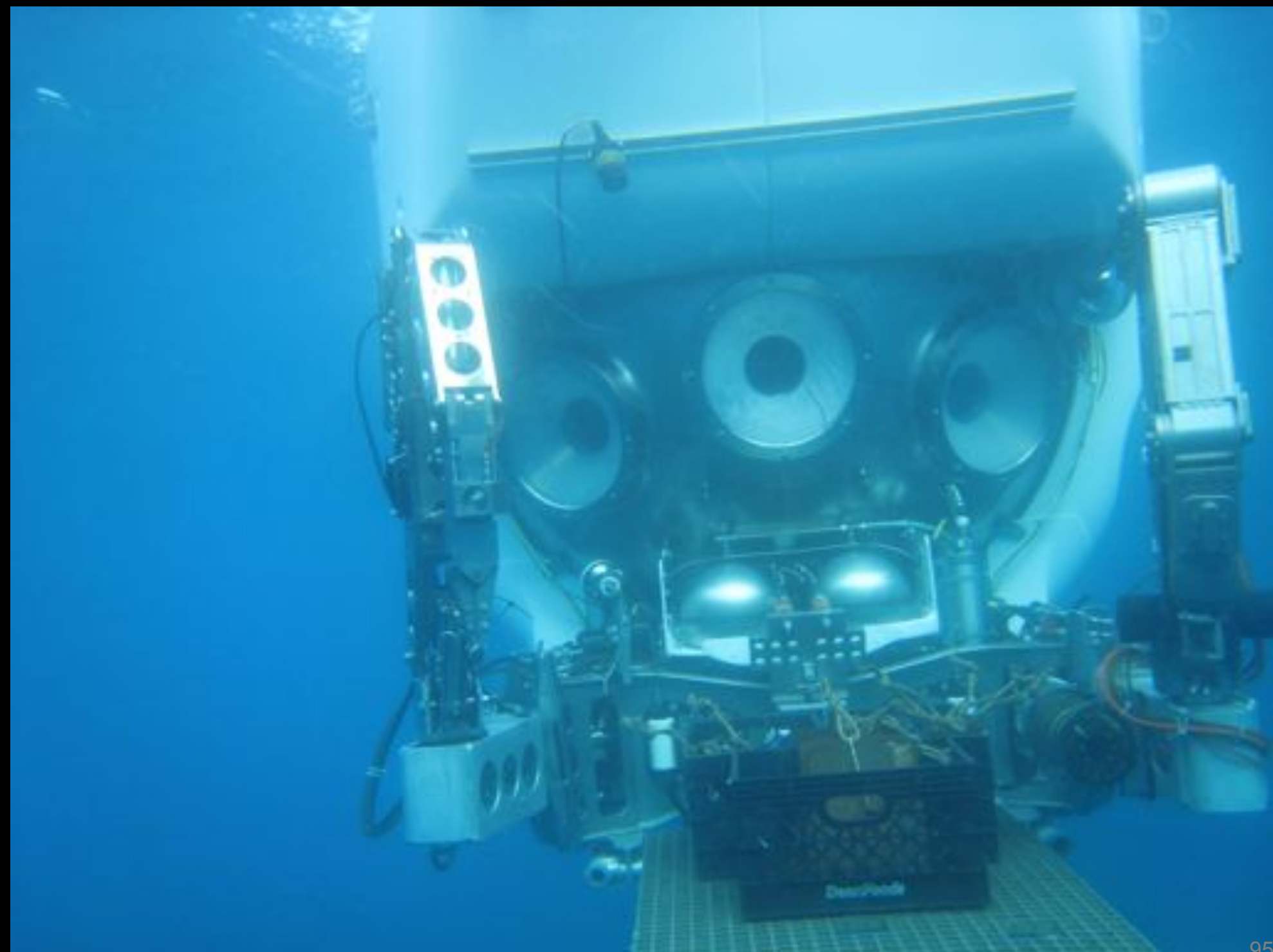


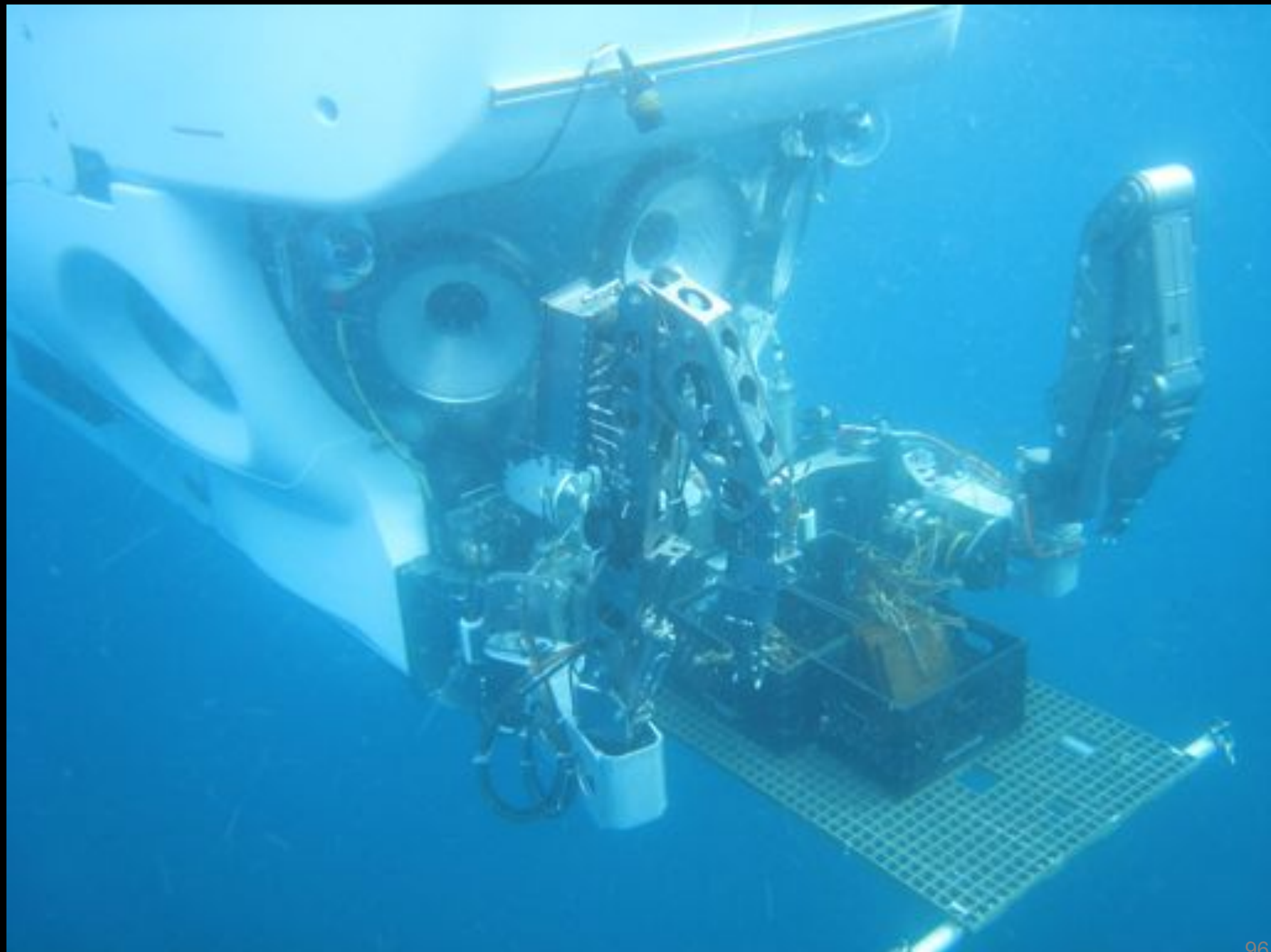


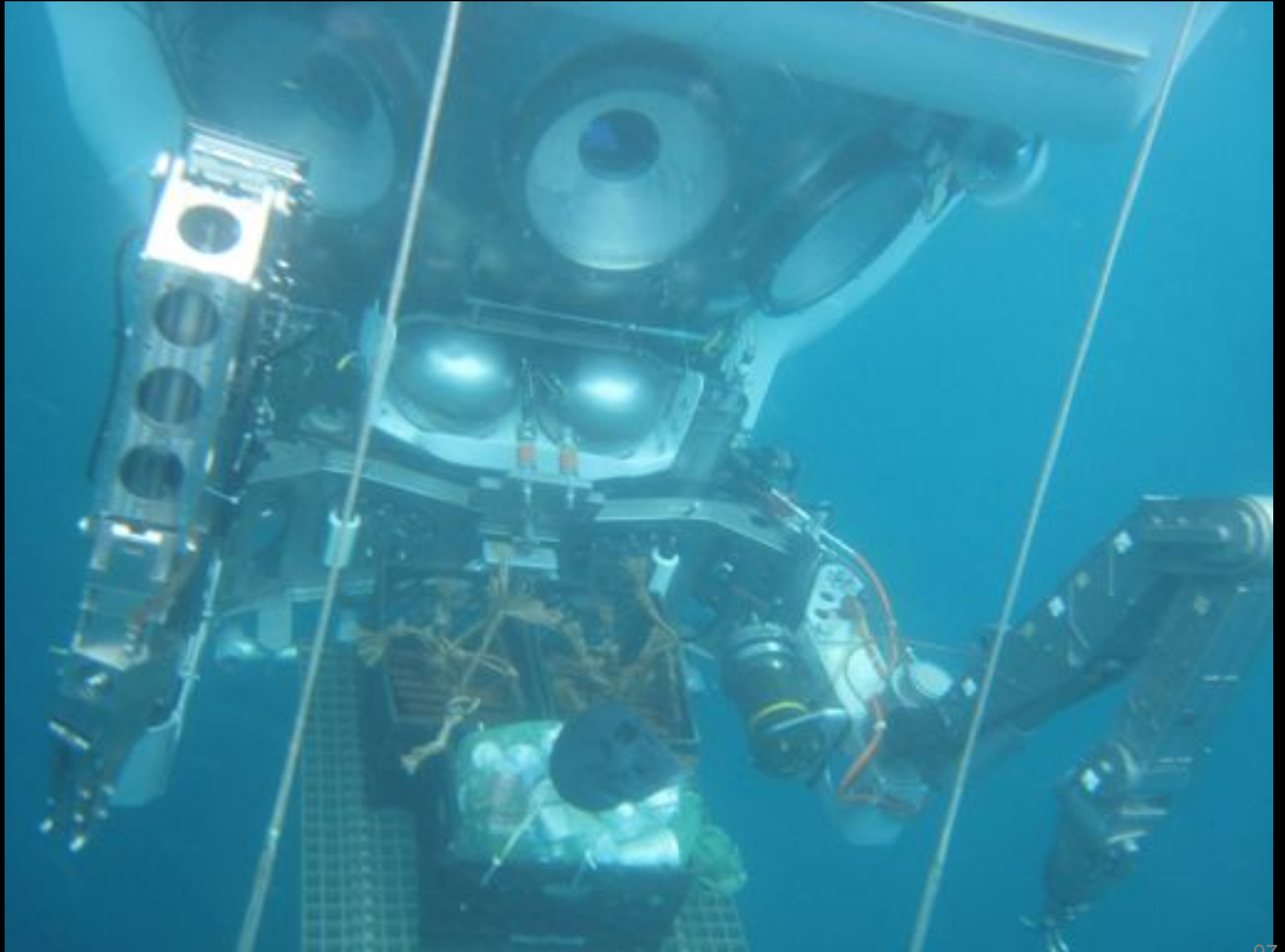


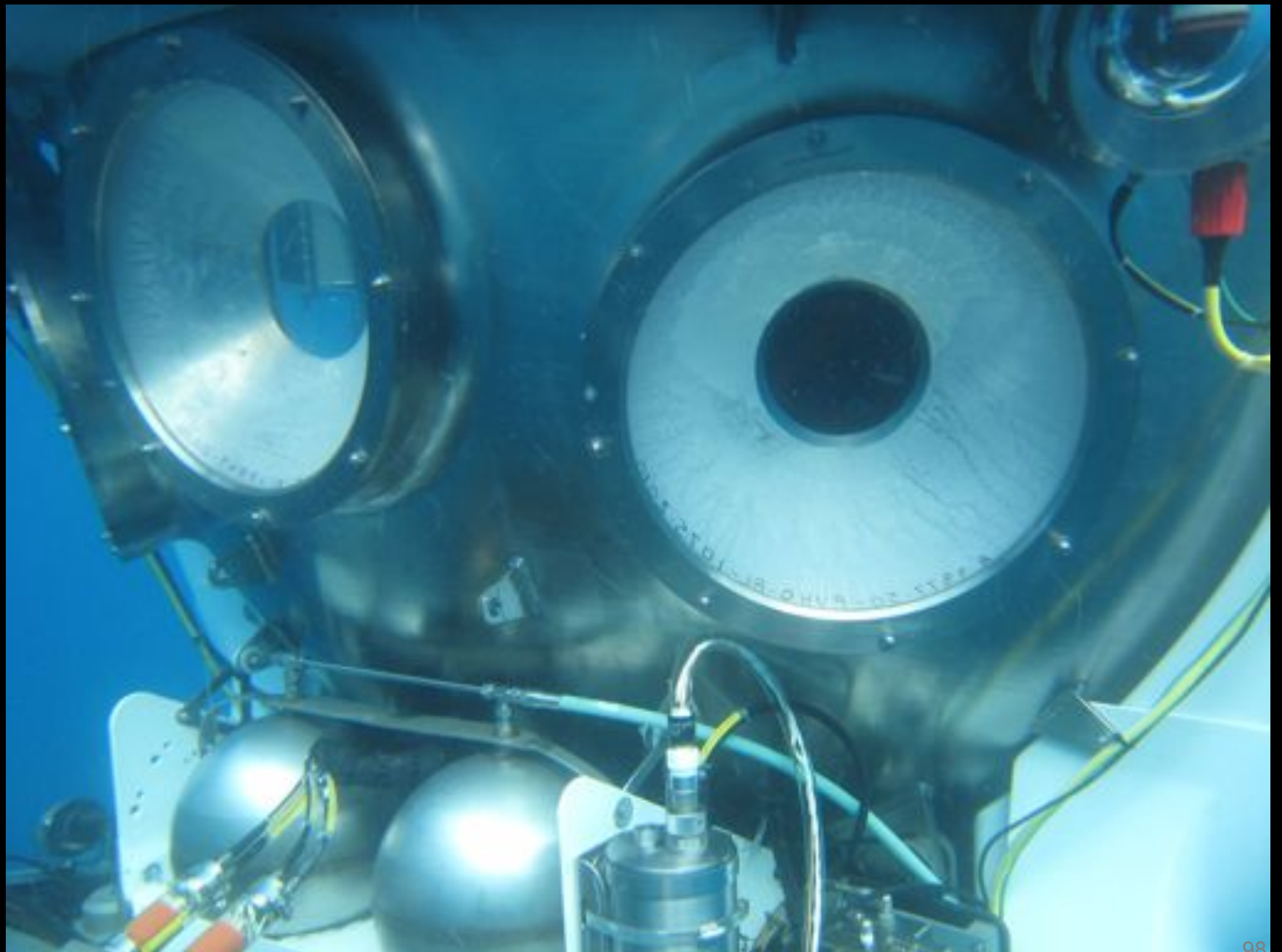


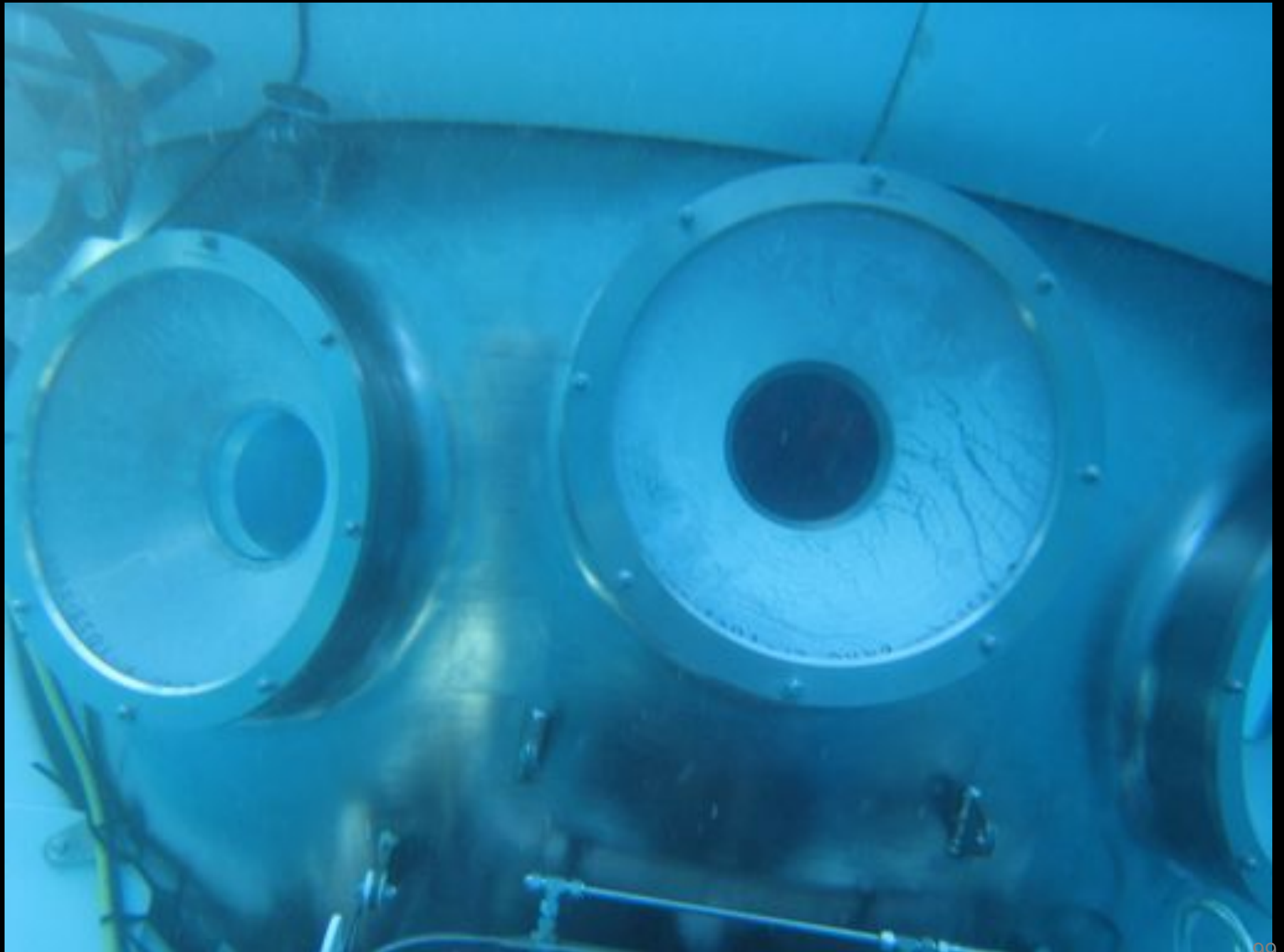




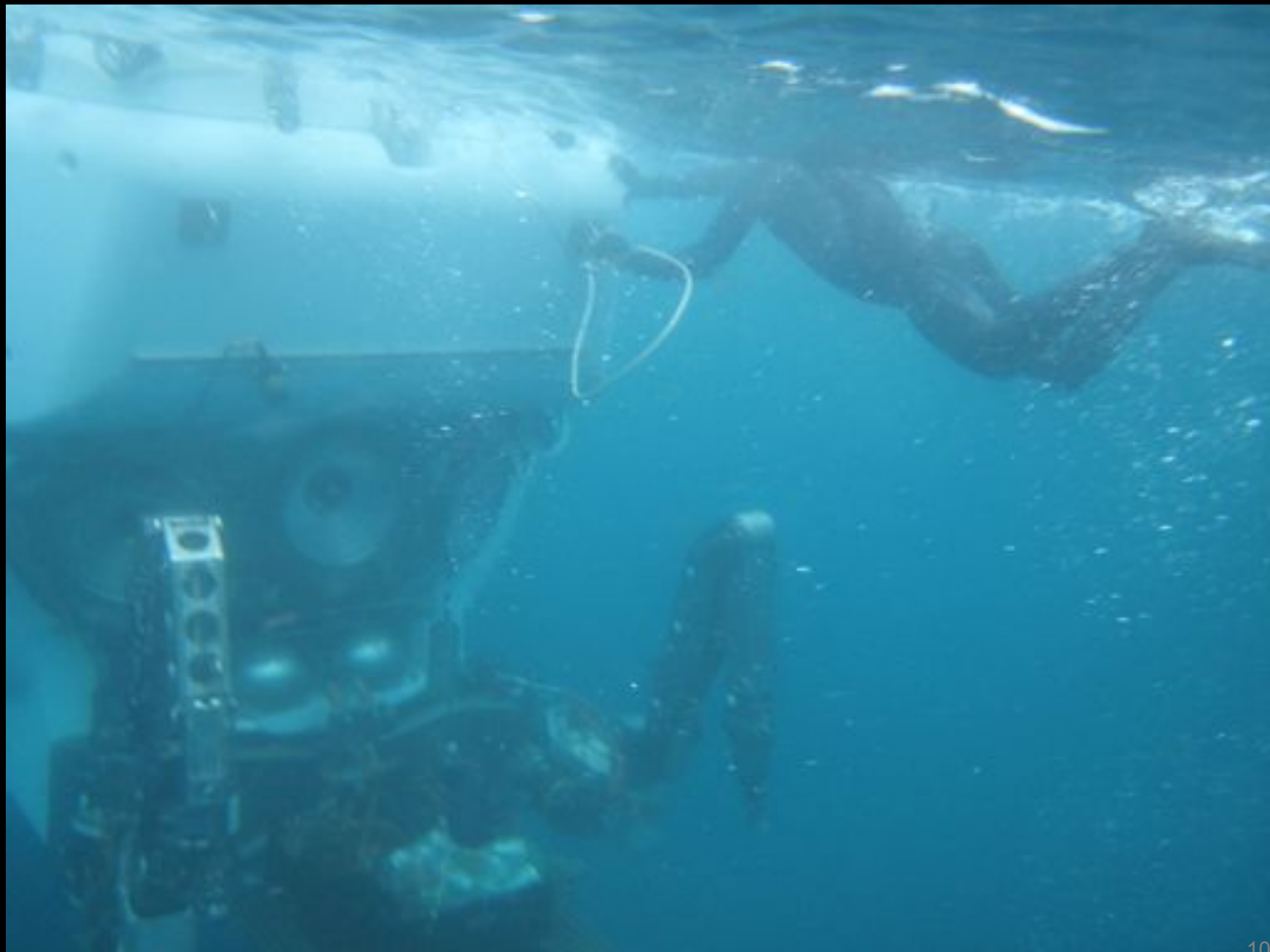


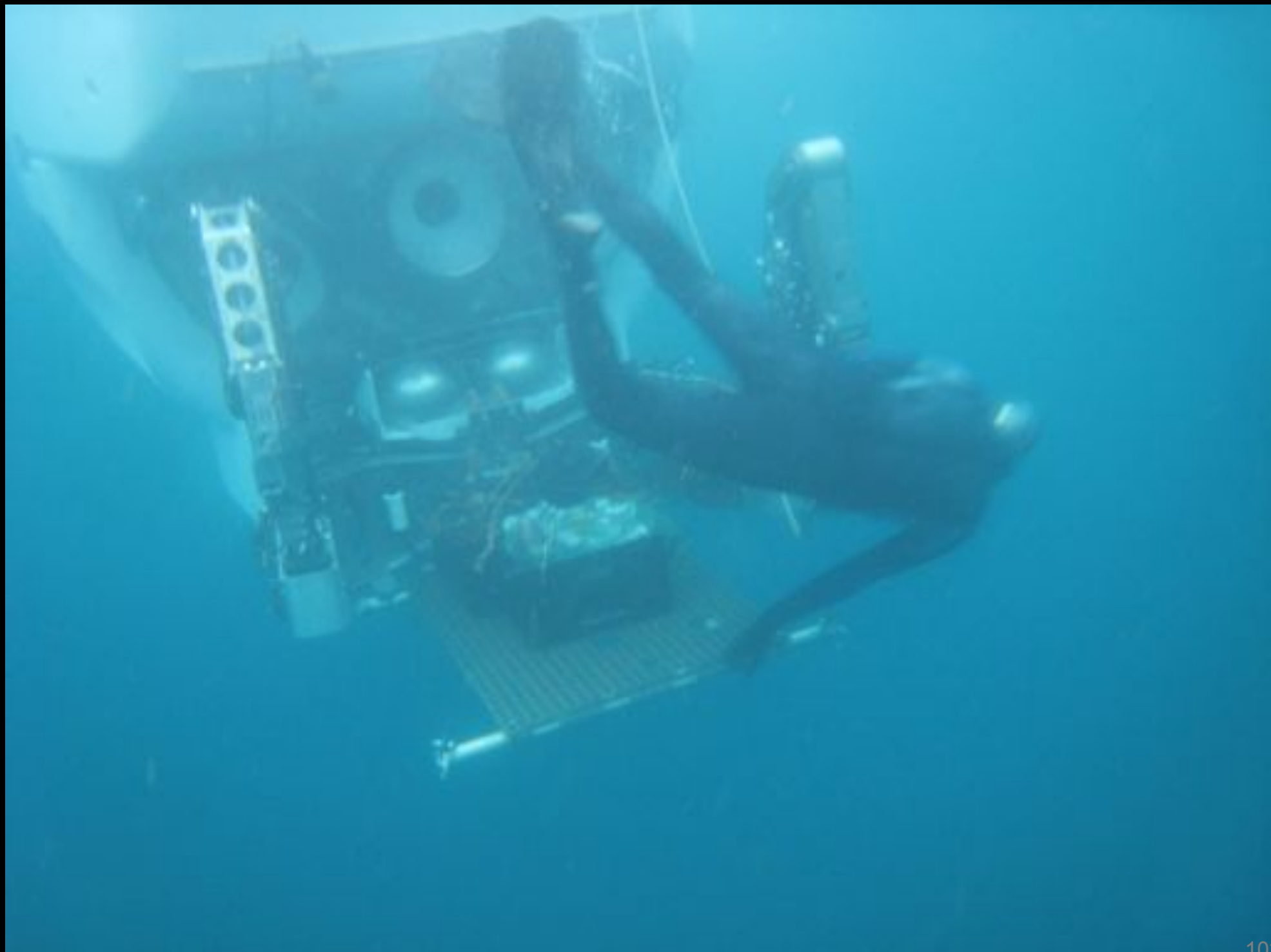


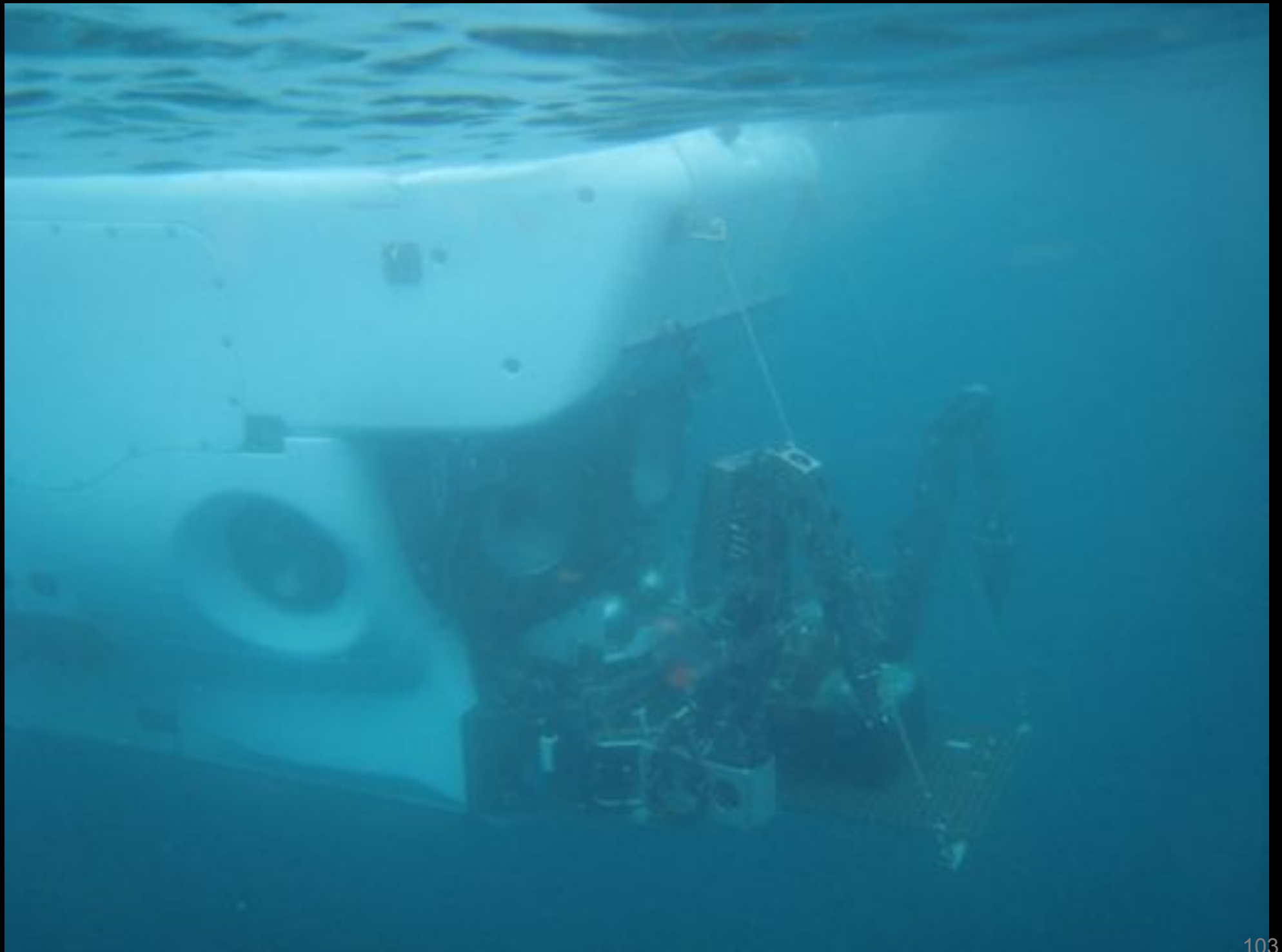


















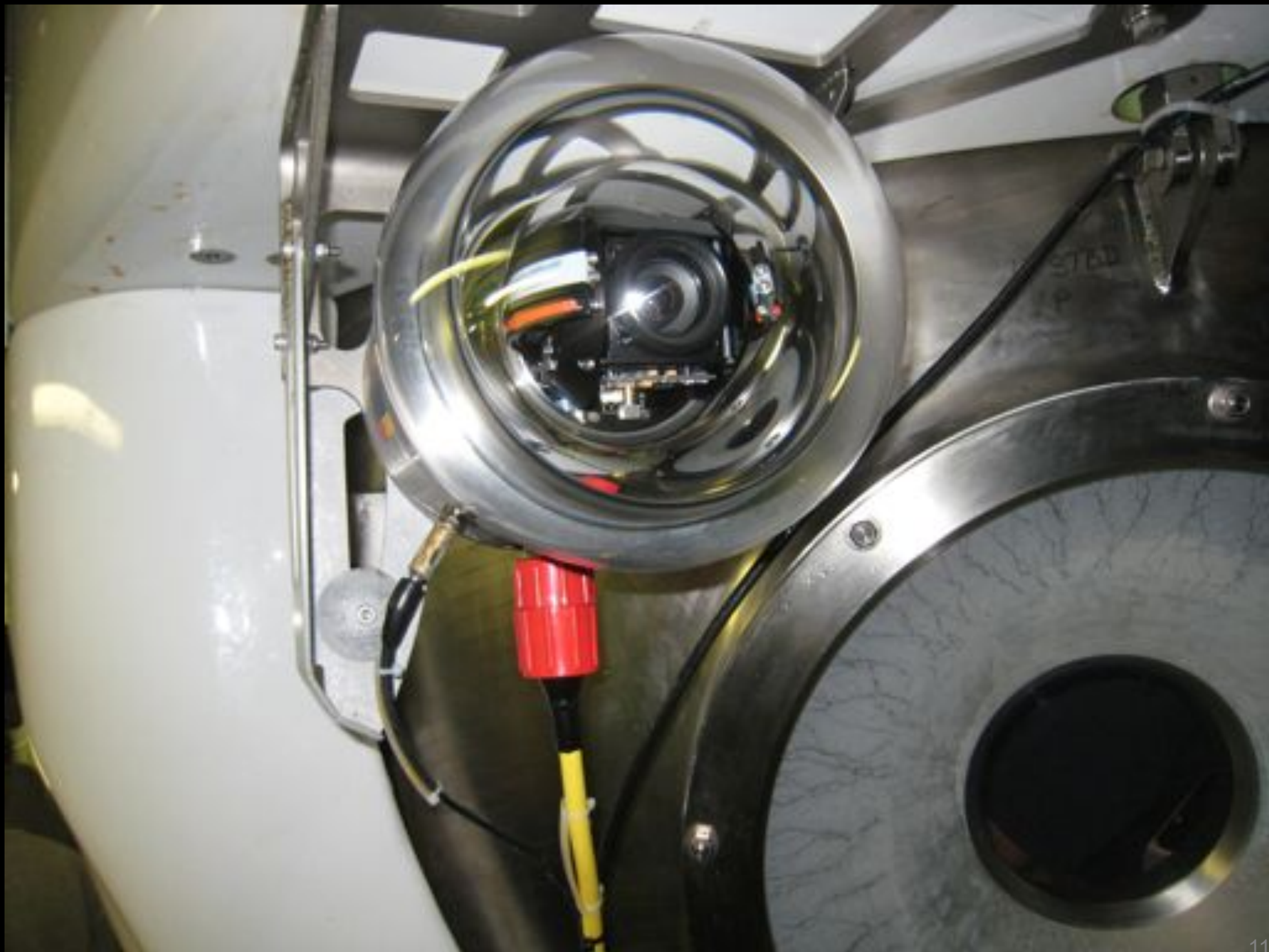


















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Current Vehicle Status

- WHOI has applied for 4,000m certification based on the last deep dive conducted on 18 Nov.
- NAVSEA has indicated that the certification approval process should be complete before the end of 2013.
- The vehicle has been secured aboard *Atlantis* while ROV operations are conducted.
- The crew is expected to rejoin the ship in February to change out cabling (source of the ground problems) and prepare for 2014 operations.



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