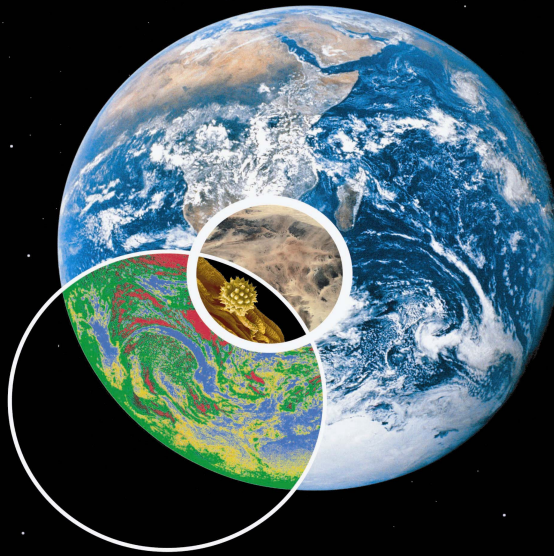


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Capabilities of the Marcus G. Langseth

MV Western Legend, Quonset Pt, RI



R/V Marcus G. Langseth, 2006



Marcus G. Langseth, 1932 – 1997



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R/V LANGSETH

Principal mission is multichannel seismics in support of NSF-funded science.

What's new?

- National Facility Status
- Multistreamer 3D Capability
- Linear Source Arrays

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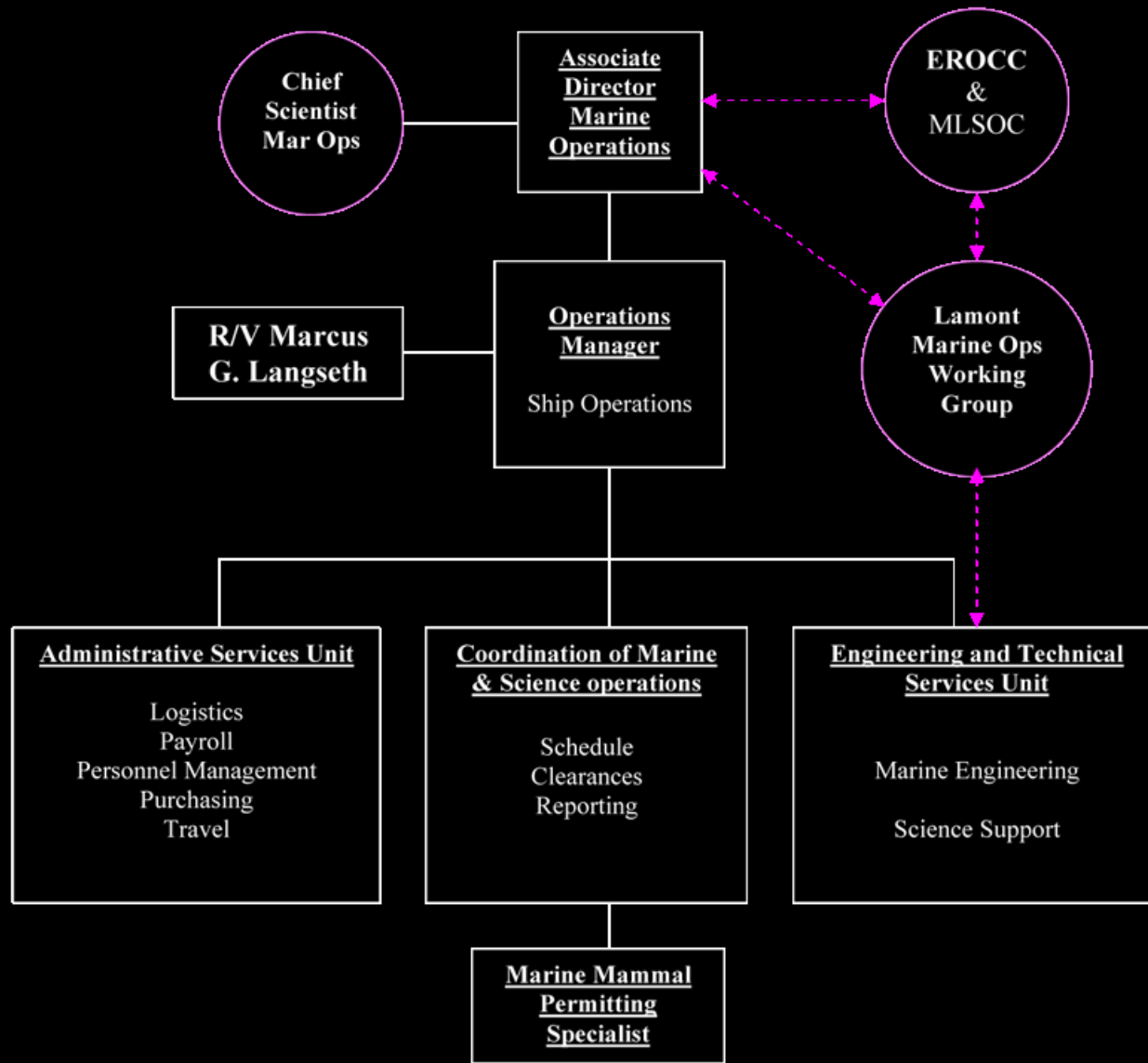
Management & National Oversight

Ewing Replacement Oversight Conversion Committee

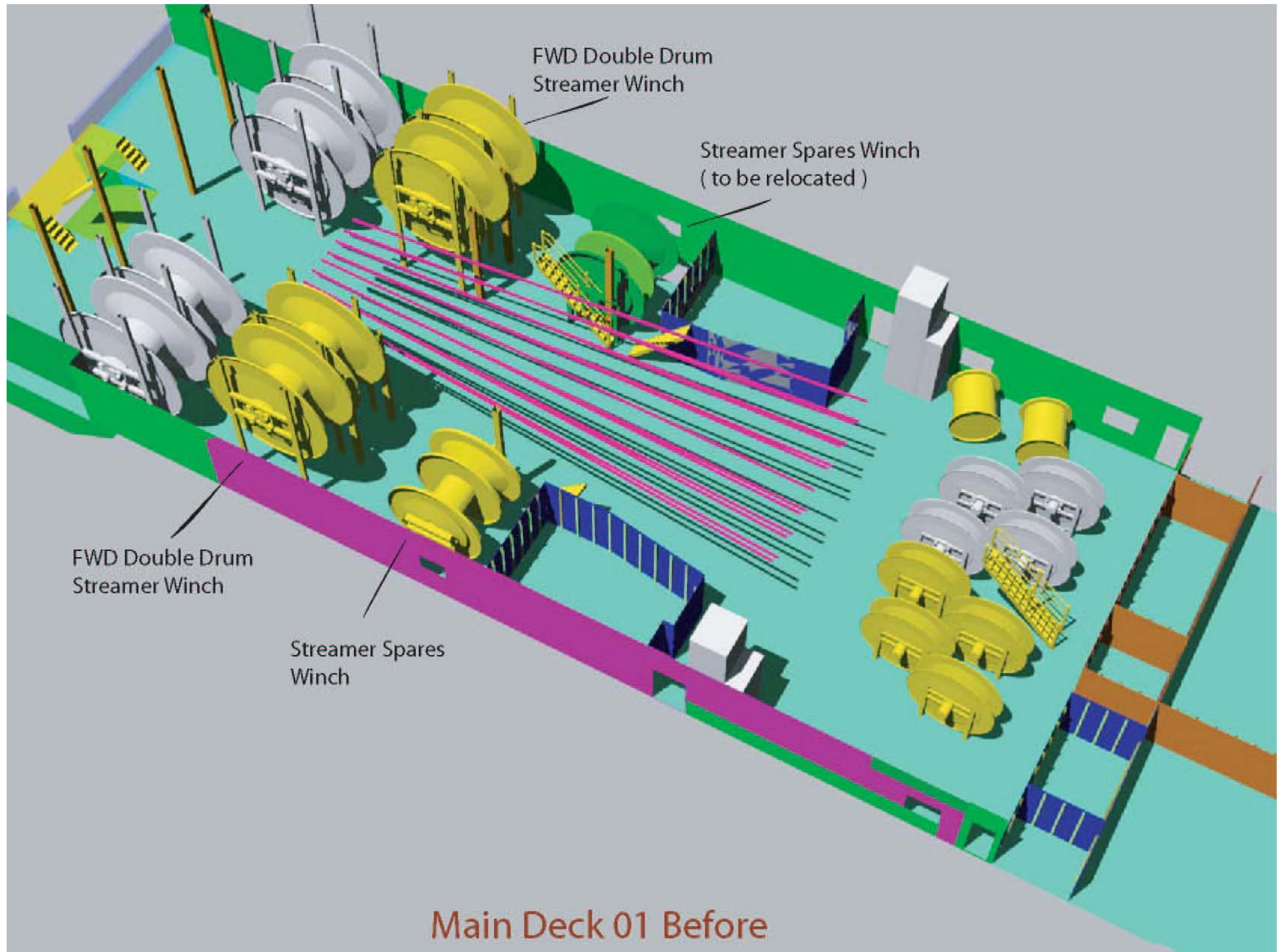
Marine Operations Working Group

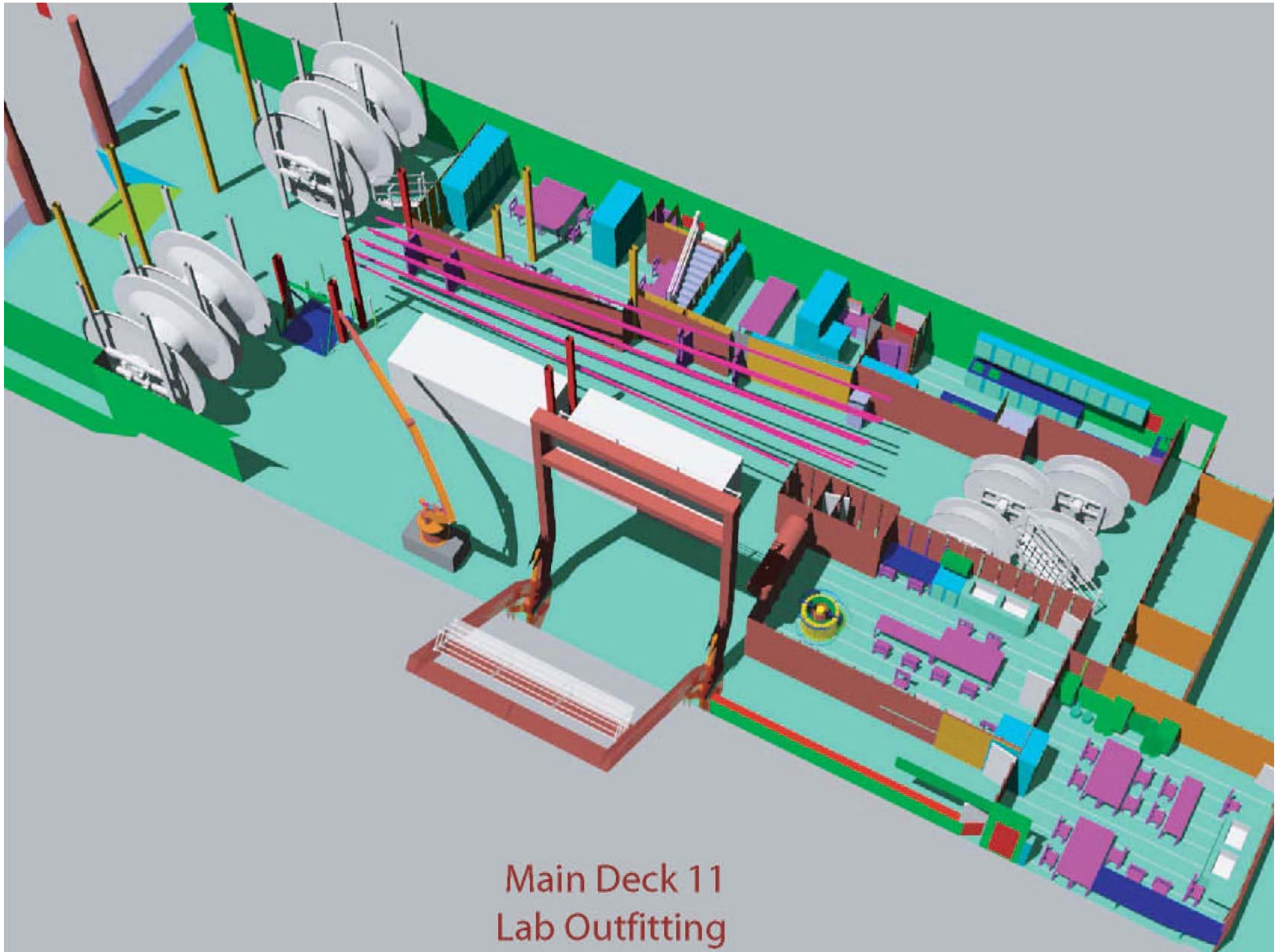
Marcus Langseth Science Oversight Committee

**Office of Marine Operations
Lamont-Doherty Earth Observatory
2005**

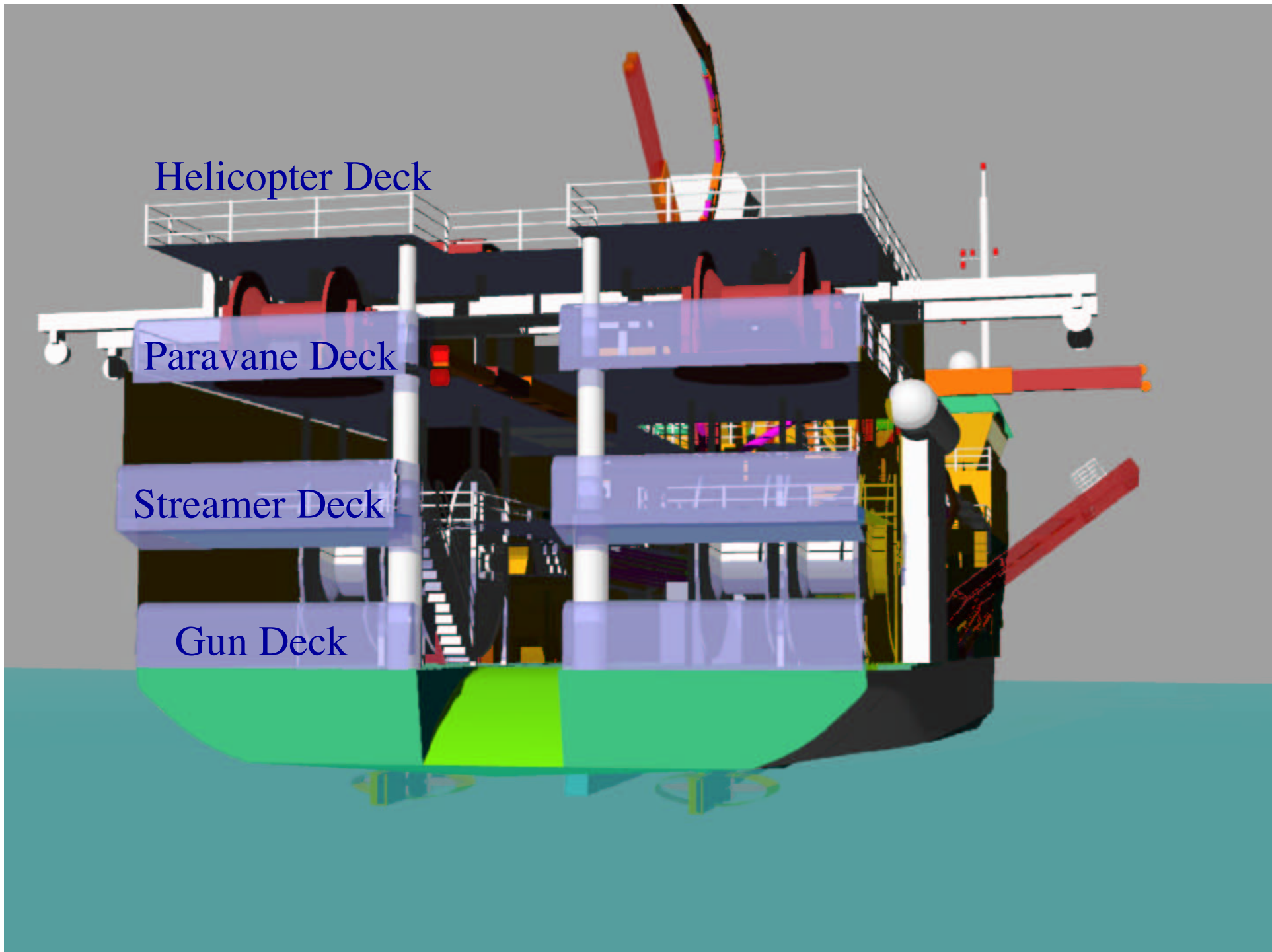








Main Deck 11
Lab Outfitting



Helicopter Deck

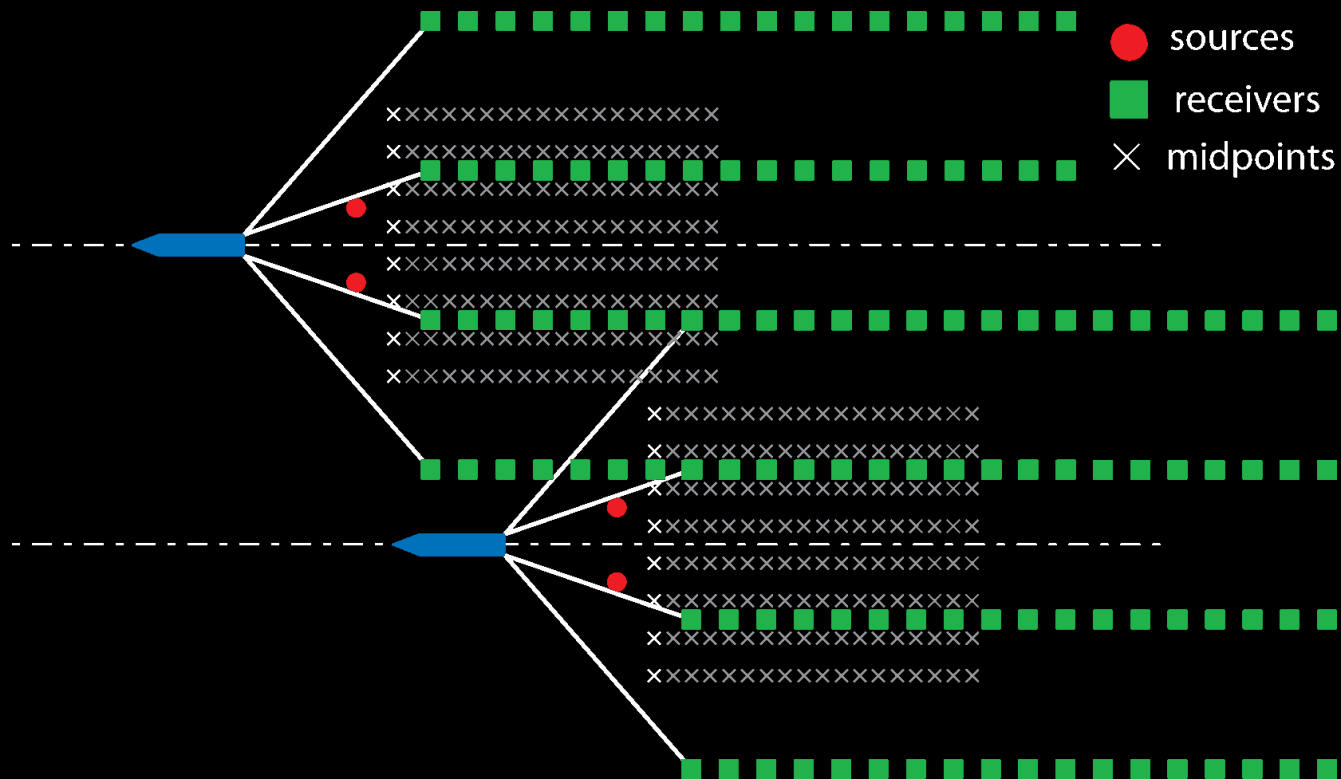
Paravane Deck

Streamer Deck

Gun Deck



Total Spread 150m – 600m, CDP line spacing 12.5m – 50m



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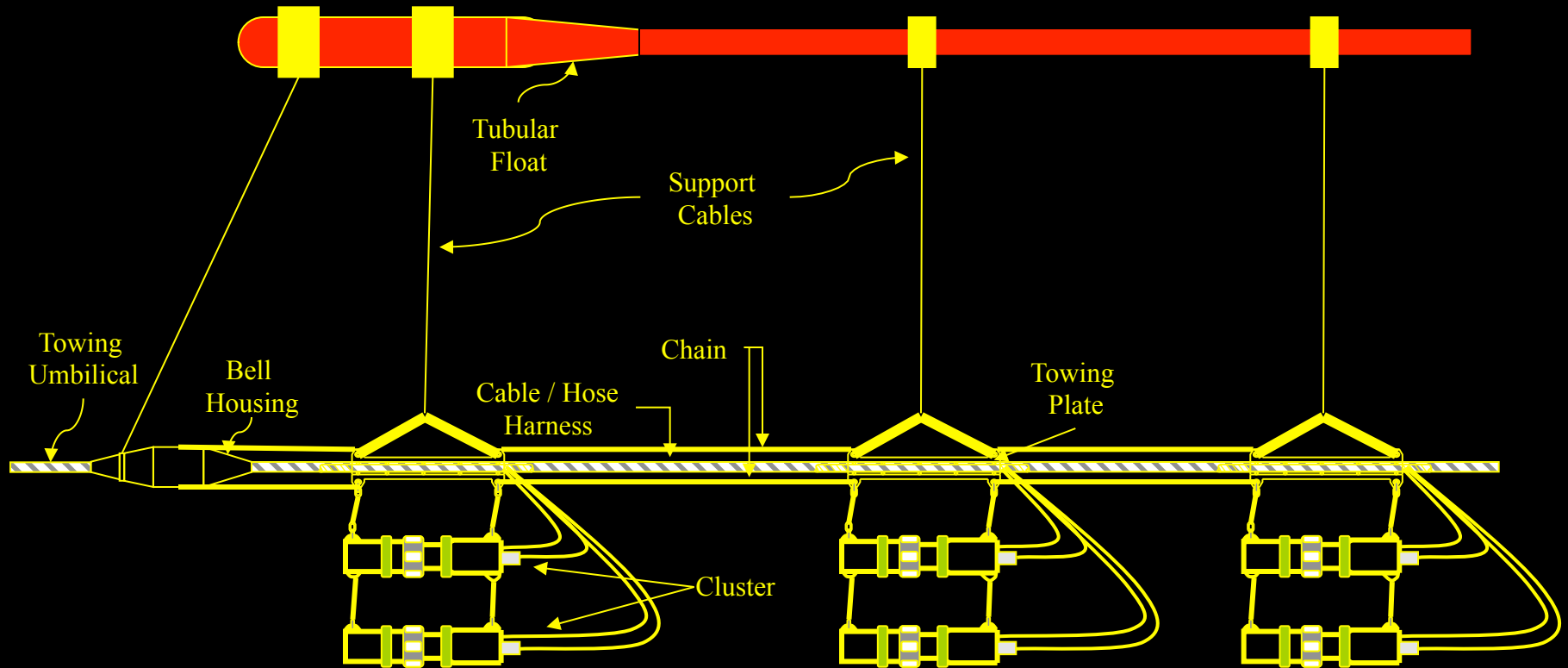
Streamers:

- 4 x 6 km x 12.5m Thales [Sercel] solid state “Sentry”
- Separations = 50 to 200 meter, for CDP spacing between 12.5 and 50 meters
- Western Geoph. Tailbuoys
- Digicourse Birds, Sonardyne Acoustic modules

Streamers – 4 x 6 km, solid state

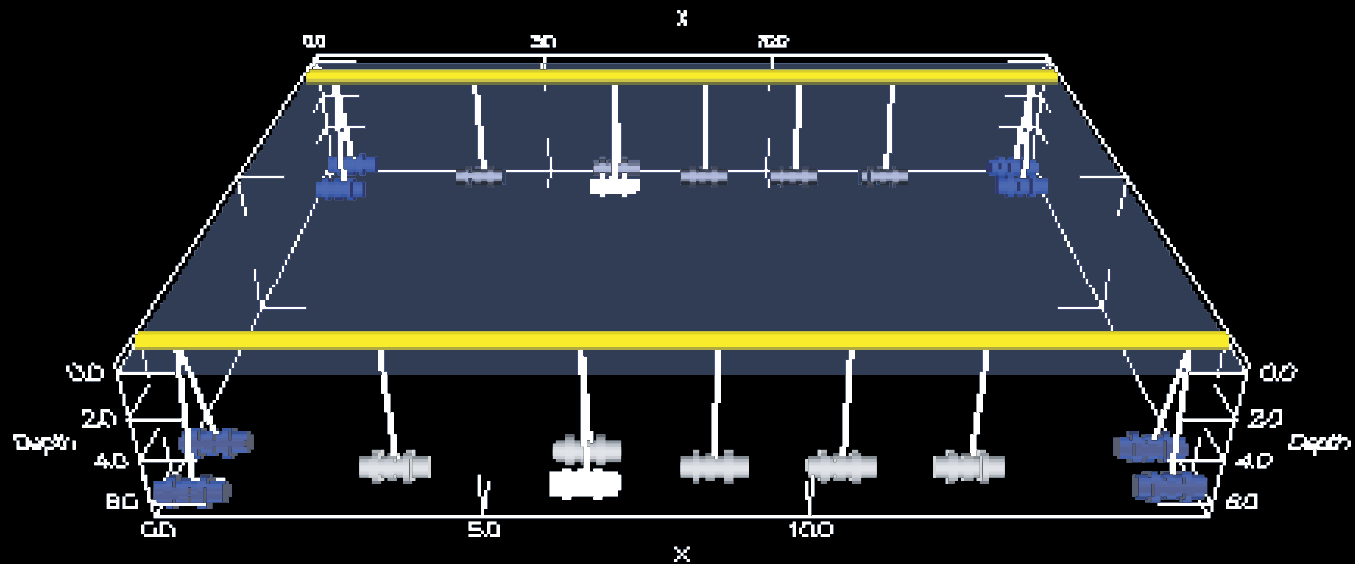


Linear Air Gun Array



R/V Langseth 3D Source array

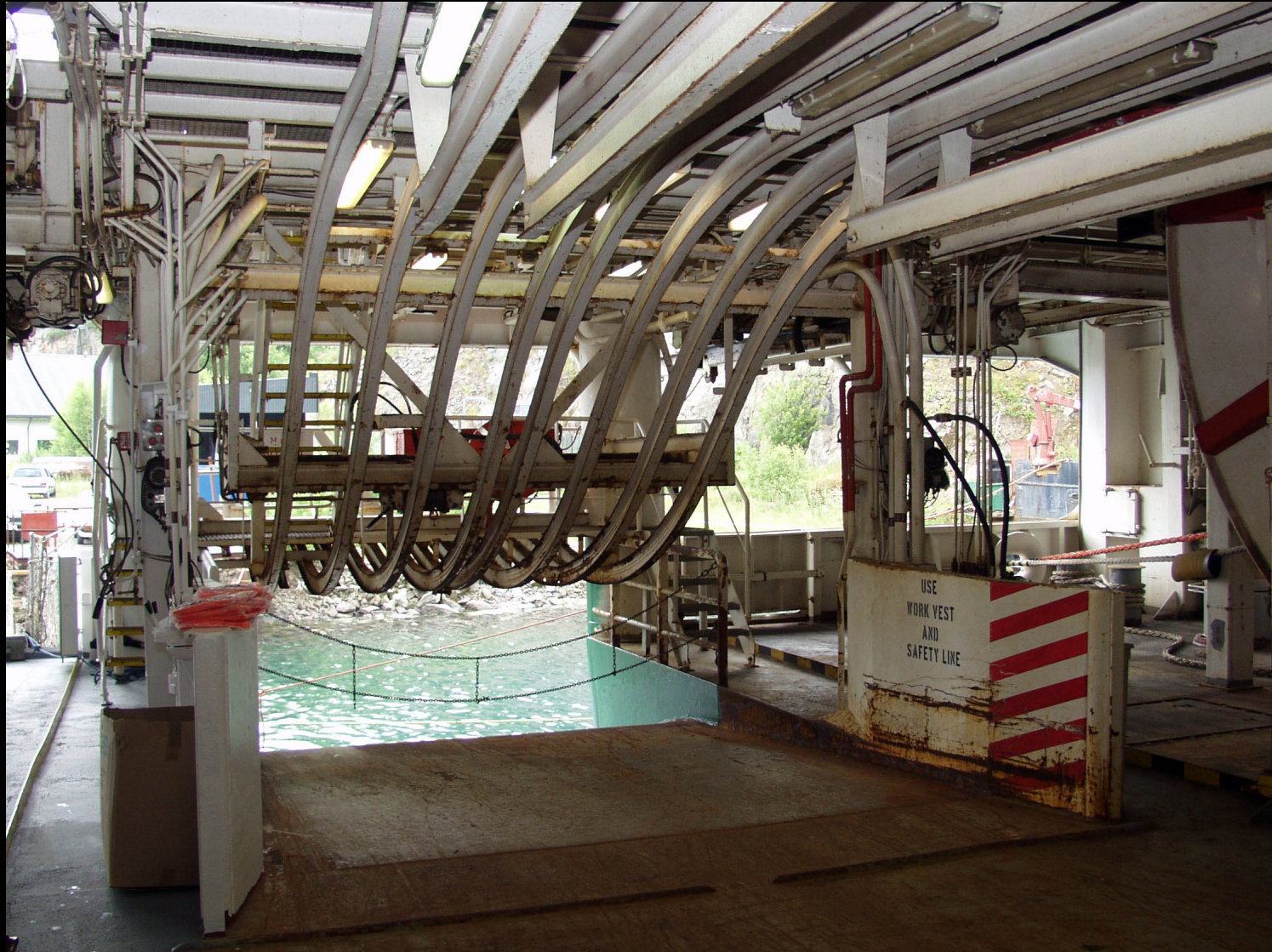
2 x 10 – element strings, 15m x 10m, 3300 cu. in.



Seismic Source Handling – Umbilical Winches



Source Array Handling - Trolleys



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Determining Acquisition Geometry

- Compass Birds
- Source head buoy and streamer tail buoy GPS
- Acoustic network

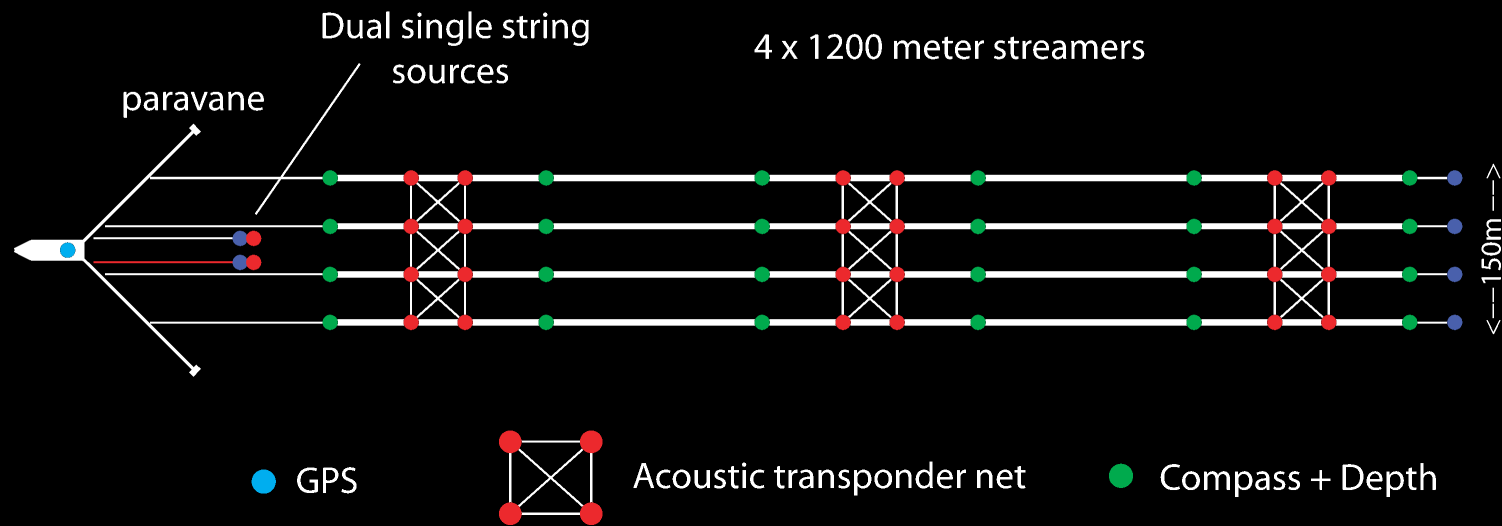
3D MCS Navigation

Spectra – Nav capture, realtime QC & logging

Sprint – Nav QC, post-processing

Reflex – Binning & Binning analysis

Langseth High Resolution 3D MCS survey mode - true scale



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3D MCS Navigation

- Spectra – Nav capture, realtime QC & logging
- Sprint – Nav QC, post-processing
- Reflex – Binning & Binning analysis

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Added Personnel for 3D surveys

Senior Science Officer/Party Chief

Contract Navigators

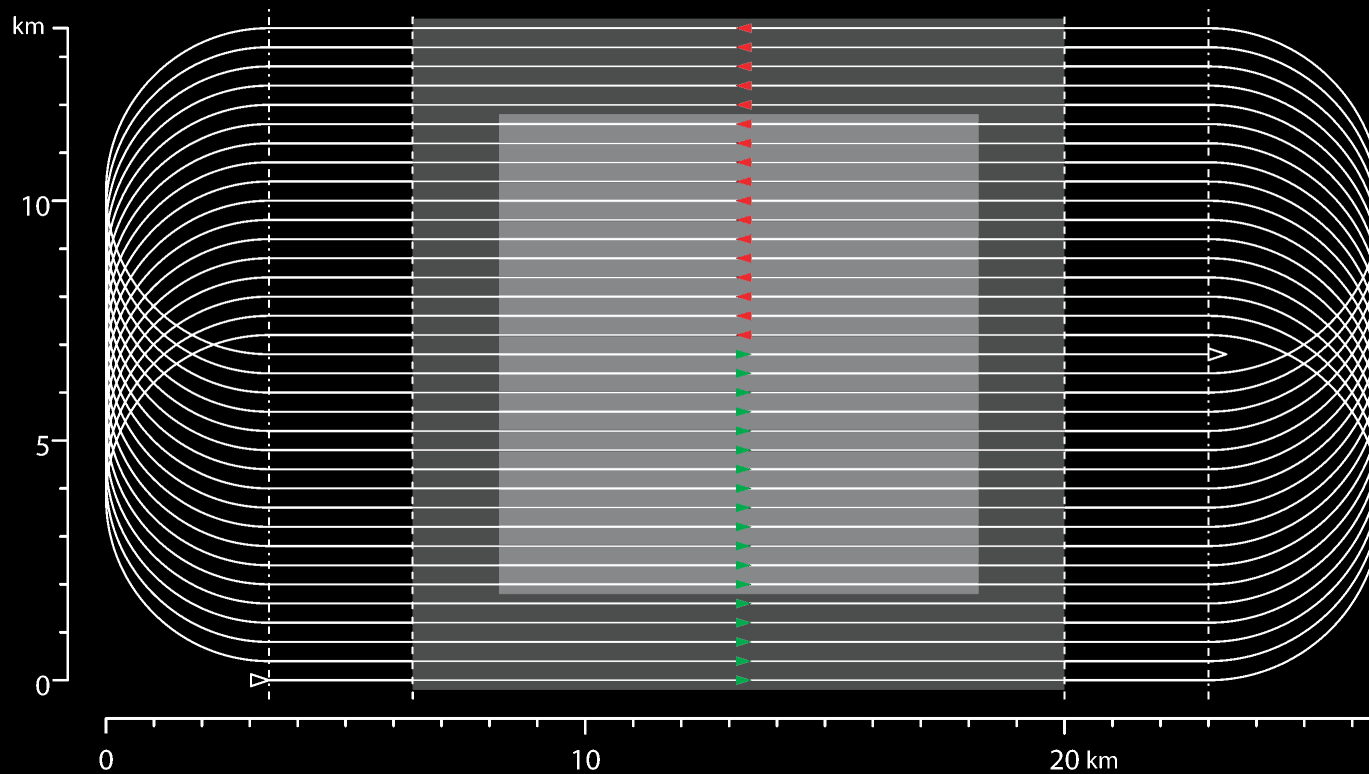
Cruise Planning

http://www.ldeo.columbia.edu/res/fac/oma/3D_Seismic/3Dcapabilitiesandcruiseplanning.html

4 streamers, 6000 meters, 200 m separation 17 loops

time on line 76.2 hours, turning 41.5 hours

total time 4.9 days. migration area $100. \text{ km}^2$ 44.9% acquisition time efficiency

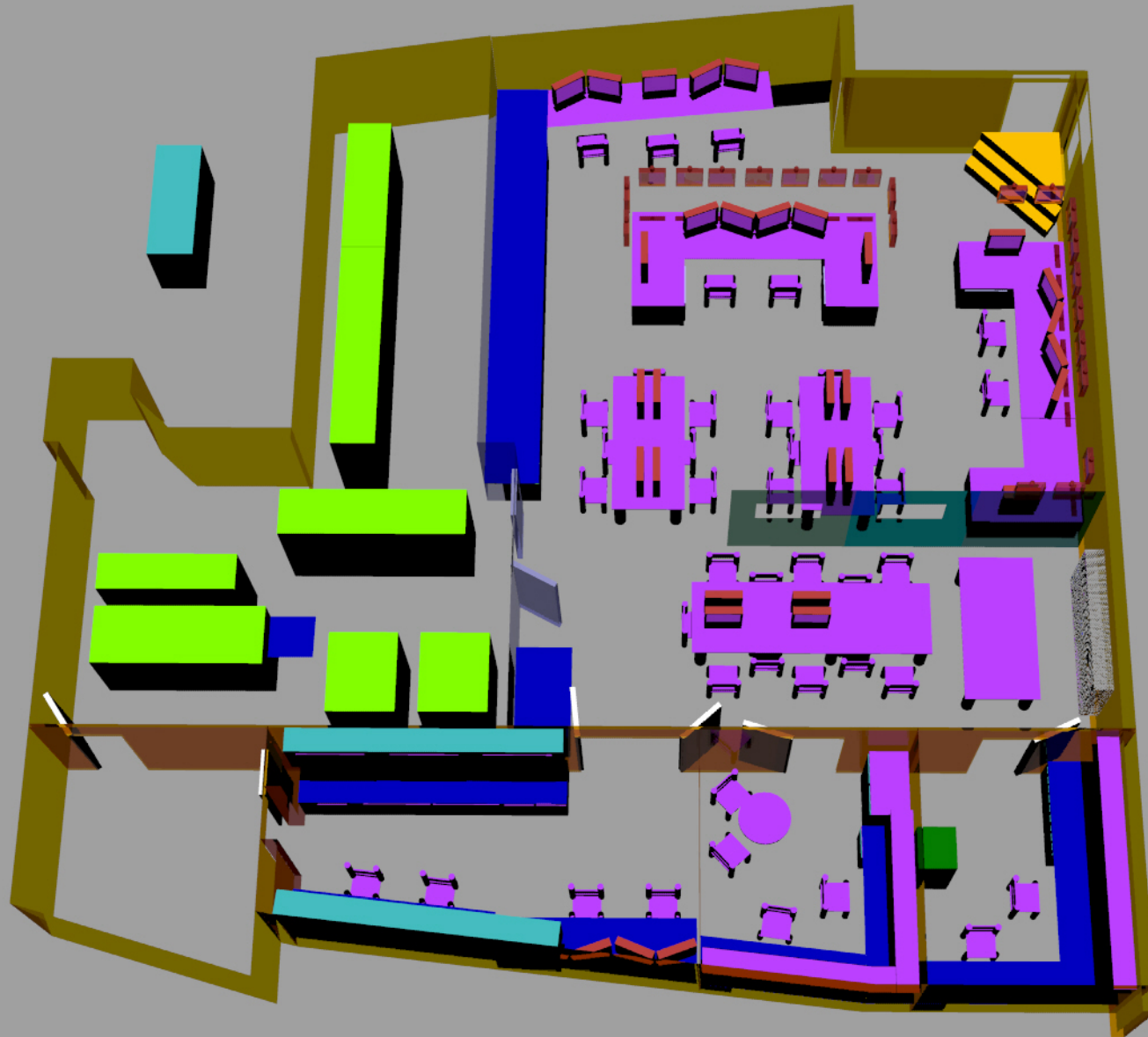


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Other Capabilities



Main Lab



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Communications:

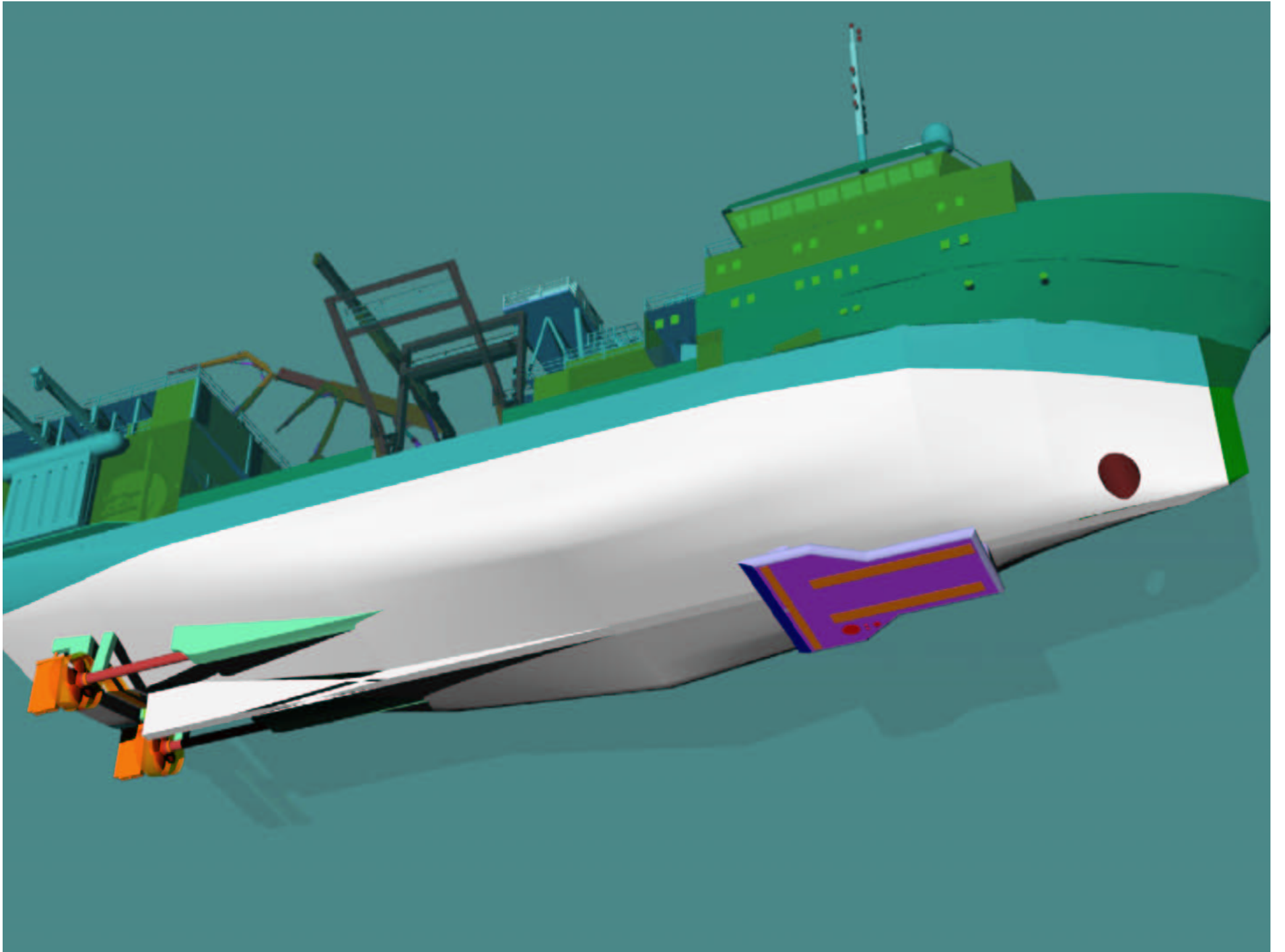
- VSAT/HiSeasNet
- Inmarsat F & B
- Cisco Router/firewall
- Fulltime connectivity => voiceover IP, Video,
- Educational support

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Swath Bathymetry

Simrad 120 – 12kHz 1° x 1°

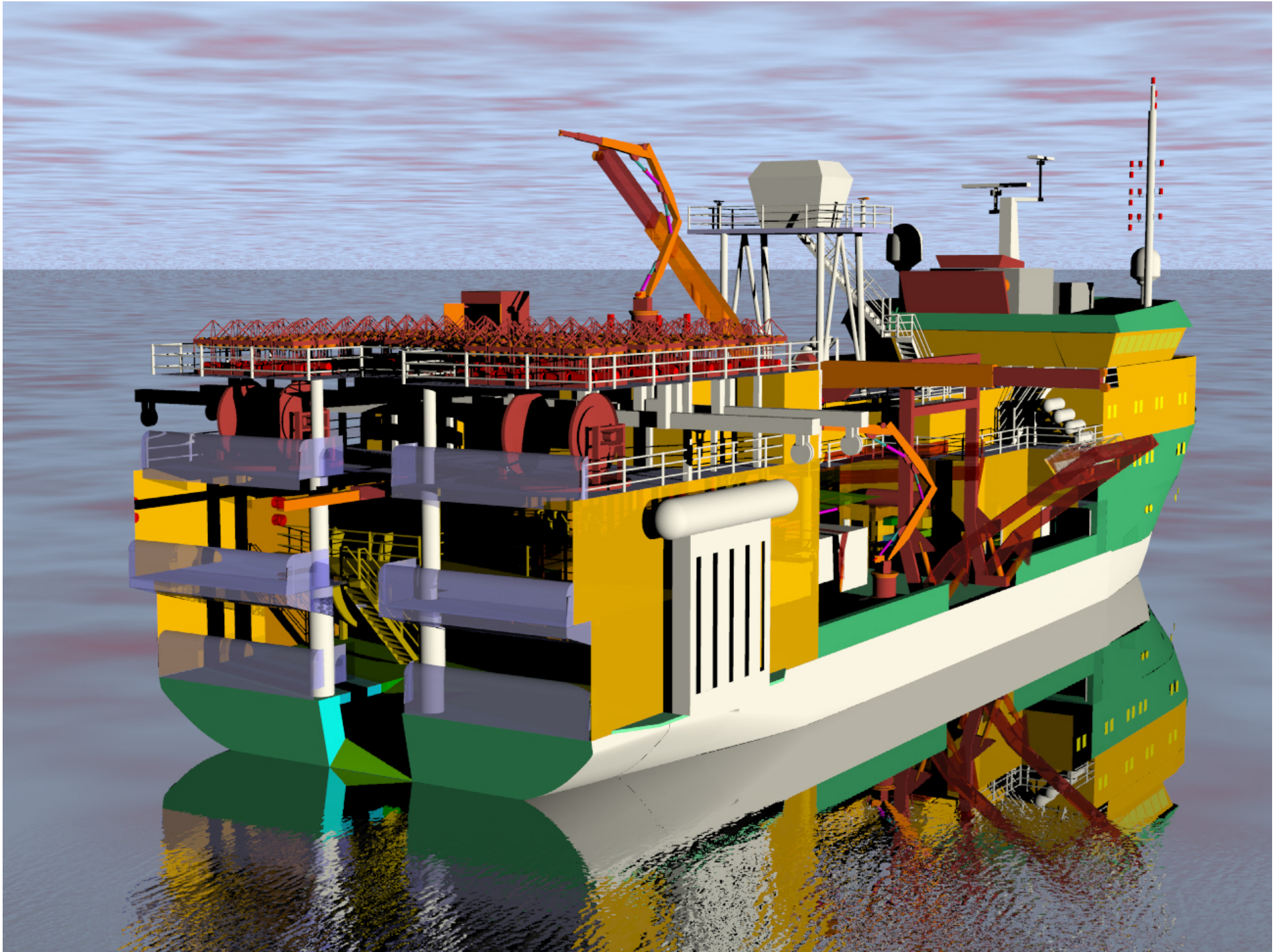
with future upgrade to 122



Marine Mammal Observation







Marcus G Langseth

