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# STARCC Report to AICC

Seattle, Washington  
USCG Base Seattle  
November 9-10, 2016

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*Presented By: Brett Hembrough - Arctic Cruise Coordinator - SIO*

*Lee Ellett - Manager - Shipboard Tech Support - SIO*

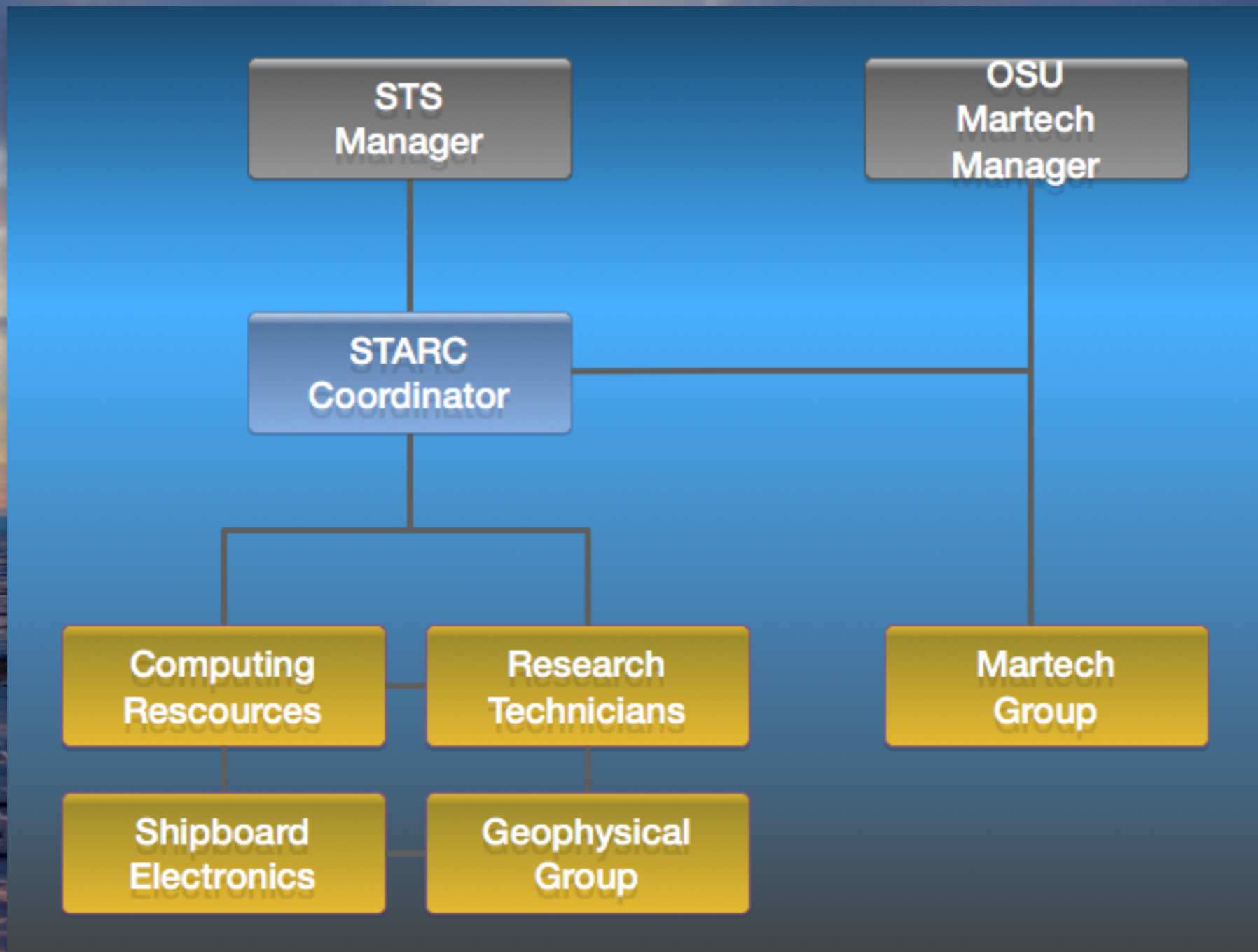
*Andrew Woogen- Manager - Marine Tech Group - OSU*

# NSF STARC Grant

- Ship-Based Technical Support in the ARCtic
- Collaboration between Scripps Institution of Oceanography and Oregon State University
- Entering 4th year of 5 year grant (2017)
  - 2014-2018



# STARC Org Chart





# Personnel Changes

## Outgoing

- **Frank Delahoyde - Retired 2016 - Computing Resources (CR) Supervisor - SIO**
- **Tony Galecki - Computing Resources Technician - SIO**
- **Dan Schuller - STARC Arctic Cruise Coordinator - SIO**
- **Johna Winters: previous Healy sailing experiences - OSU**
- **Ted Cummiskey: previous Healy sailing experience - SIO**



# Personnel Changes

## Incoming

- **Lee Ellett - SIO STS Manager**
- **Andrew Woogen - OSU Martech Manager**
- **Jon Meyer - Computing Resources Supervisor - SIO**
- **Brett Hembrough - STARC Arctic Cruise Coordinator- SIO**



# Annual Maintenance

- All SeaBird CTD sensors, CTD slip rings and underway sensors removed, inventoried, serviced, calibrated.
- All meteorological sensors removed, repaired as needed, calibrated.
- Science seawater system secured and backflushed with fresh water.
- Underway pCO<sub>2</sub> system secured, nitrogen bottles replaced, software updates.
- Gravimeter - Annual visit to reinstall instrument after shipyard. Instrument was serviced and gravity tie completed before departure from Seattle.
- EM122 MBES transducer impedance measurements made.



# Shipyards Maintenance & New in 2016

- Van relocation completed to the extent of NSF funding.
- EM122 Tx and Rx transducer ice windows lowered, cleaned, visual inspection
- Acquired new 12kHz transducer, installation still to go.
- LCI 90i winch data distribution updates.
- Installed Hypack as trial - one possible Mapserver alternative.
- New PosMV MRU system.
- UPS battery replacements - (ongoing)
- Replaced multibeam helmsman computers
- Replaced bridge meteorological sensor interface.
- Replaced primary serial data acquisition system.



# Shakedown (HLY16TA)

May 10-14, 2016

- **STARC Techs: SIO - Frank Delahoyde, Lee Ellett, Tony Galecki, Jay Turnbull, OSU - Brandon DeAndrea,**
- **Mobilization from shipyard presented challenges**
- **Figure 8 for STARC equipment testing.**
- **Multibeam Testing - 1 MRU calibrated (PosMV)**
  - **Machinery noise observed**
  - **Power Supply- precautionary replacement**
  - **Software re-install**
- **Winch & Wire tests with CTD and Pinger (1602 prep)**
- **XBT Testing**
- **HyPack Installation, configuration**



# Mobilization

Seattle, WA - May 23, 2016

- 4 pallets of science equipment, dredges, misc gear
- ROV winch deck plate

Seward, AK - June 30 - Jul 2 & Aug 11-13, 2016

- Alaska Logistics - Shore Crane (100t) and Forklift
- ROV, OE Winch, ROV Control Van, ~36 pallets of science equipment (1601)
- Seward Marine Science Center assisted w/ staging equip.
- 2x containers, Mooring Winch, XBTs, 2x Gliders, Abix buoys, misc gear, etc (1602/03)



# Transit (HLY16TB)

Seattle to Honolulu

June 7-14, 2016

- **STARC Techs : 1 SIO Tech - Frank Delahoyd, 1 OSU Tech  
Johna Winters, MATE Interns x 2,**
- **Projects:**
  - **Data acquisition configuration**
  - **Multibeam testing off Honolulu**
- **Mapserver scripts for track line plotting**



# Transit (HLY16TC)

Honolulu to Seward

June 21-28, 2016

- **STARC Techs : OSU - Andrew Woogen. SIO - Keith Shadle, Tony Galecki, MATE Interns**
- **Projects:**
  - **CTD cast to 100m**
  - **Verifying ship system configuration for 2016 season**
    - **Science seawater**
    - **Serial feeds**
    - **System Documentation - Start up / monitoring guide**
    - **Scoreboard functionality w/ new MET software**



# **HLY1601 Hopcroft**

**Seward to Seward**

**July 2 - Aug 10, 2016**

- **STARC Techs : Croy Carlin (OSU), Steve Jalickee (UW), Nick Benz (MATE)**
- **Operations: ROV ops**
  - **CTDs 24p1 121 w/ UVP and VMP (science equip) attached**
  - **Multi-net, box core, PSB trawl, small mooring, drifters**
  - **Ice sampling**
- **Gravimeter gyro replaced**
- **Hypack difficulties, but after reinstall is functional**
- **MET software update (patch) improved functionality**
- **Echosounder worked well for detecting Healy Pingers**
- **Multibeam back up PC configured**



# HLY1602 Worcester

Seward to Nome

Aug 16 - Sept 18, 2016

- **STARC Techs : Keith Shadle (SIO), Brandon D'Andrea (OSU), Justin Miyano (UH/MATE)**
- **Operations:**
  - **Mooring Deployments x7**
  - **DVLA Sound source / hydrophone**
  - **Customized MET system for science party during cruise**
- **Equipment Issues**
  - **Seapath exhibiting errors, PPS error, degraded accuracy**
  - **Regular BISTs conducted for review by Kongsberg**
  - **PosMV Antenna failure early in cruise**
    - **Replacement ordered/expedited, hand carried to Nome**



# HLY1603 Mayer

Nome to Dutch Harbor

Aug 18 - Sept 6, 2016

- **STARC Techs : Jay Turnbull (SIO), Tom Bollmer (UNOLS), Elizabeth Ricci (UNOLS)**
- **Operations:**
  - **Multi-beam Mapping (Patch Test)**
  - **Echo-sounder Survey**
  - **Dredging**
- **PosMV Antenna Replacement at Anchor**
  - **Compressed install window**
- **SeaPath problems fixed, switch from copper wire to fiber**
  - **Ship Noise (electrical interference )**
- **EM122 Tx failures observed**



# Transit HLY16TD

Dutch Harbor to Seattle

Aug 18 - Sept 6, 2016

- **STARC Techs : Brett Hembrough (SIO) Elizabeth Ricci (UNOLS/MATE)**
- **Projects:**
  - **Inventory all STARC sensors**
  - **Clean and Organize STARC storage areas**
  - **Plan support going into 2017**



# End of Season Projects

- **Uninstall all MET sensors, sent for calibration/repair**
- **CTD Sensors at SeaBird for calibration**
- **Purging of obsolete equipment/spares on vessel**
- **Gravimeter platform components to be shipped to PFPE for refurbishment**
- **EM-122 Transducer impedance testing**
- **Re-install RM Young Anemometers ASAP**



# 2017 Projects

- Purchase new computers for science systems - lifespan replacements. (ADCP, MET, EM122, etc)
- Echosounder transducer install (12kHz)
- 12kHz transducer installation
- reinstall KSync for sonar syncing
  
- Key Challenges in 2017
  - Install alternative software packages for mapserver functionality.
  - icefloe.net -significant upgrades are required to retain the expected functionality.
  - EM122 Swath Width



# 2016/17 EM122 In Depth Analysis

- **Transducer impedance - This week**
- **Submit data to Kongsberg**
- **Schedule Kongsberg site visit**
- **Engage UNOLS Multibeam Advisory Committee (MAC)**