



Test and Evaluation Department

Mr. Gary Zook



Core Mission Area – Undersea Test, Performance Assessment and Assurance

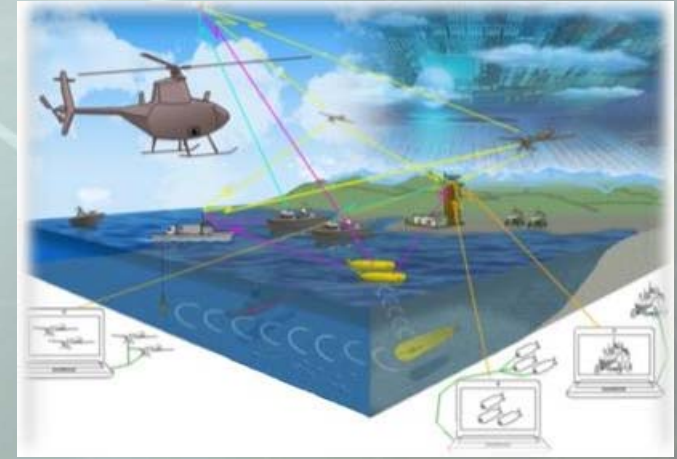
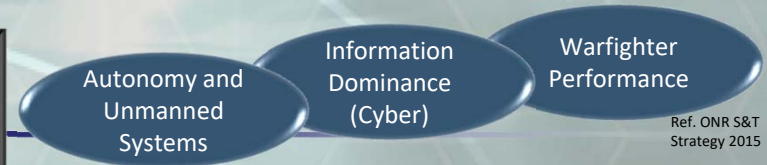
Today's Navy

- Scripted tests
- Short duration events
- Acoustic sensors
- Post-event analysis
- Localized stimulation
- Limited threat emulation



Potential Game Changers/ Disruptive Technologies

- Networked adaptive autonomous vehicles
- Supercavitating and stealth vehicle T&E
- Clandestine system testing
- Wideband acoustic system use
- Large area and long duration missions
- T&E Systems
- ISR stimulation (threat representative)
- Persistent sensor networks
- Stealth communications
- Improved mission planning
- Live virtual constructive events
- High-performance cloud computing
- Big data analytics
- Machine learning and autonomy



Next Navy (+5-10 years)

Current Focus

Anytime/Anywhere T&E. Leverage existing in-water and land-based T&E capabilities, enhance capabilities by repurposing current systems while introducing more agile stimulation and monitoring systems to expedite transformation of T&E from scripted and defined objectives to a measurement of system performance and mission relevance.

- Incorporation of network and cyber testing capabilities to enable live, virtual and constructive events
- Integrating underwater communications technology to enable frequency agile monitoring and measurement capabilities
- Improved planning and assessment capability for near real-time feedback to fleet and developers
- Improved emulator systems (agile threat representative)
- Long-term test scenarios including periodic communication, evaluation, and re-tasking

Navy After Next (+20 years)

Vision of the Future

Self-deploying autonomous networked underwater equipment, remotely controllable, forward deployed, with near real-time analysis feedback and archival capability for in-depth post-analysis to provide assessment of system performance

- Undersea network of distributed autonomous self-deploying and intelligent sensors
- Advanced integrated planning and assessment capability
- Advanced incorporation of simulation/stimulation capabilities for live, virtual and constructive testing
- Agile stimulation systems for threat representation
- Capability to provide assessment and confidence in complicated future systems
- Non-acoustic instrumentation and communication at

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Seaport Service Contracts

- **N00178-14-D-4067 Hawaii Support Services**
 - Ford island, Pearl Harbor waterfront, MK30/Kauai, IMA and WESTPAC MK30 Detachment (Guam and Japan)
 - Awarded: 20 Sept 2018/ Concludes: 14 Aug 2018
 - INDUS Technology, Inc
 - Base Year Plus 3 option years, CPIF
 - There will be a re-compete
- **N00178-14D-7331 Acoustic Trials and Range Sustainment**
 - Surface Ship Radiated Noise Measurement (SSRNM), Fleet Sonar Self Noise (FSSN), Prairie-Masker Operability (PMO), range systems development, range data reduction and subject mater expert support
 - Awarded: 01 April 2020/ Concludes: 10 Mar 2025
 - Celeris Systems, Inc.
 - Base Year Plus 4 option years, CPIF
- **N00178-14-D-7656-FY03 Technical and Industrial Support Services**
 - Range operations and systems, CM and drafting, environmental testing, UTRE, MK30 Depot and aircraft component depot (actuator motors) (all technical/no engineering)
 - Award: 30 Sep 2016 / Scheduled Conclusion: 29 Sep 2021
 - Celeris Systems, Inc.
 - Base Year Plus 4 option years, CPIF
 - There will be a re-compete

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Seaport Service Contracts

- **N00253-17-R-3011 San Diego Support Services**

- Range operations and systems, configuration management (CM) and drafting, environmental testing, Undersea Tracking Range Equipment (UTRE), MK30 Undersea Targets Depot, and aircraft component depot (actuator motors)
- Awarded: 30 Apr 2018/ Concludes: 29 Apr 2023
- INDUS Technology, Inc.
- Base Year Plus 5 option years, CPIF
- There will be a recompet

Other Keyport Seaport Service Contracts Leveraged

- N00178-04-D-4083-FY06 Engineering Support Services
- N00178-14-D-7860-FY01 Software Support Services

Contracts Leveraged Outside of Keyport

- Army AMRDEC Prototype Integration Facility (PIF)
- Defense MicroElectronics Activity (DMEA) Advanced Technology Support Program (ATSP)
- Puget Sound Naval Shipyard: Range Vessels
- DLA Tailored Logistics Support
- NUWC Newport Undersea Technology Innovation Consortium

Slide 4

CCSM1 Updated the date information for SoCal and Hawaii's contracts.

Added "Other Keyport Seaport Service Contracts Leveraged" and "Contracts Leveraged Outside of Keyport"

Magnuson, Christal CIV NAVSEA KPWA, 4/3/2018

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Range Craft Major Maintenance Future Need

- Approximately 7 contracts from 2021 to 2025. Either Keyport or PSNS will contract
- Keyport Range Craft:
 - Yard Torpedo Test Class (YTT): Quantity 2
 - Torpedo Weapons Retriever (TWR): Quantity 2
 - Barges (IX-536, IX 552, YC)
- Scope of work will involve.
 - Dry-docking
 - Hull preservation
 - Repair
 - Installation of new parts
 - Various preventive maintenance actions

YTT

- 187' Open Ocean Capable Vessel



TWR

- 85' Ocean Capable Vessel



IX 536

- 175' Multipurpose Barge



Slide 5

CCSM2

New slide to show high level information for the upcoming Range Craft contracts.

Magnuson, Christal CIV NAVSEA KPWA, 4/3/2018

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Acoustic Test Labs



Mission: To provide acoustic test and evaluation for weapons and hardware while maintaining a culture of affordability.

Future Needs:

- Underwater cabling and connectors
- Anechoic materials
- Pressure vessel expertise
 - Welding and repairs
 - Fittings
 - Locking ring alignment
- Industrial Instrumentation
 - Motor controllers
 - Pumps and valves
- Water conditioning
 - Chilling
 - Filtering
- Signal Detection and analysis



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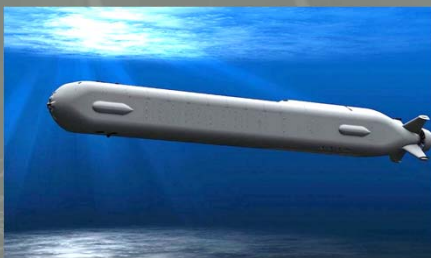
Pinger Underwater Tracking Equipment



Mission: Provide and maintain accurate and reliable underwater tracking hardware for undersea weapons, vehicles, and submarines.

Future Submarine & UUV Acoustic Transducer:

- Highly anti-corrosive
- Multiple frequency bands
- Integrated depth sensor & vacuum port
- Hydrodynamic shape
- Military grade wet-mate connector



Conceptual LDUUV

Future End-of-Run Locator (EORL) Acoustic Beacon for Weapon Recovery:

- Programmable frequency (37 – 55 kHz) and ping rate (pulses per time interval)
- High output level (>160 dB re 1uPa @ 1m)
- Coded output pulse
- Long runtime (> 30 days)



Current EORL

Future Acoustic Beacon Locating Equipment:

- Fully compatible with EORL
- Easily deployable and cost effective
- Adaptable to dynamic ocean environments
- Hydrodynamic, pre-amplified hydrophone



Towable Hydrophone

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Supply Purchases - Recurring

- **Infrastructure Support**
 - Furniture (modular desks, partitions, chairs, tables, etc.)
 - Small electrical and HVAC materials
- **Information Technology**
 - Software and software support
 - Network hardware (routers, servers, switches, etc.)
 - Network cables and tools
 - Telecom equipment and supplies
- **Vessel Support**
 - Safety equipment / inspections (rafts, buoys, fire prevention, beacons, etc.)
 - Crane and winches maintenance and repair
- **Shop Support**
 - Tools (wrenches, dead blow hammers, hammer, watt meters, socket sets, etc.)
 - Hardware (screws, bolts, set-screws, etc.)
 - Consumables: nitro gloves, brass and steel brushes, strapping and packing tape, rope, wire)
 - Magnification lights
 - Drill press

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Supply Purchases – Current and Future Need

- **Current Need**

- Welding and painting
- Marine electrical (generators, navigation systems) and marine electronic repairs
- Diesel engine and generator repair
- Wire rope – purchase and maintenance
- Marine fire fighting certification
- Publications: navigation, safety, coast guard requirements, log books
- Consumables: filters: water, air, oil, hydraulic
- Machining services – parts
- Helical gears
- Specialty kits (actuator, engine repair, etc.)
- Submerged Object Recovery Device (SORD)

- **Future Need**

- Electronic test equipment
- Bulk oil