



# **Developmental Status of our Navy's Timely MIW Systems**

**NDIA Expeditionary Warfare Conference**

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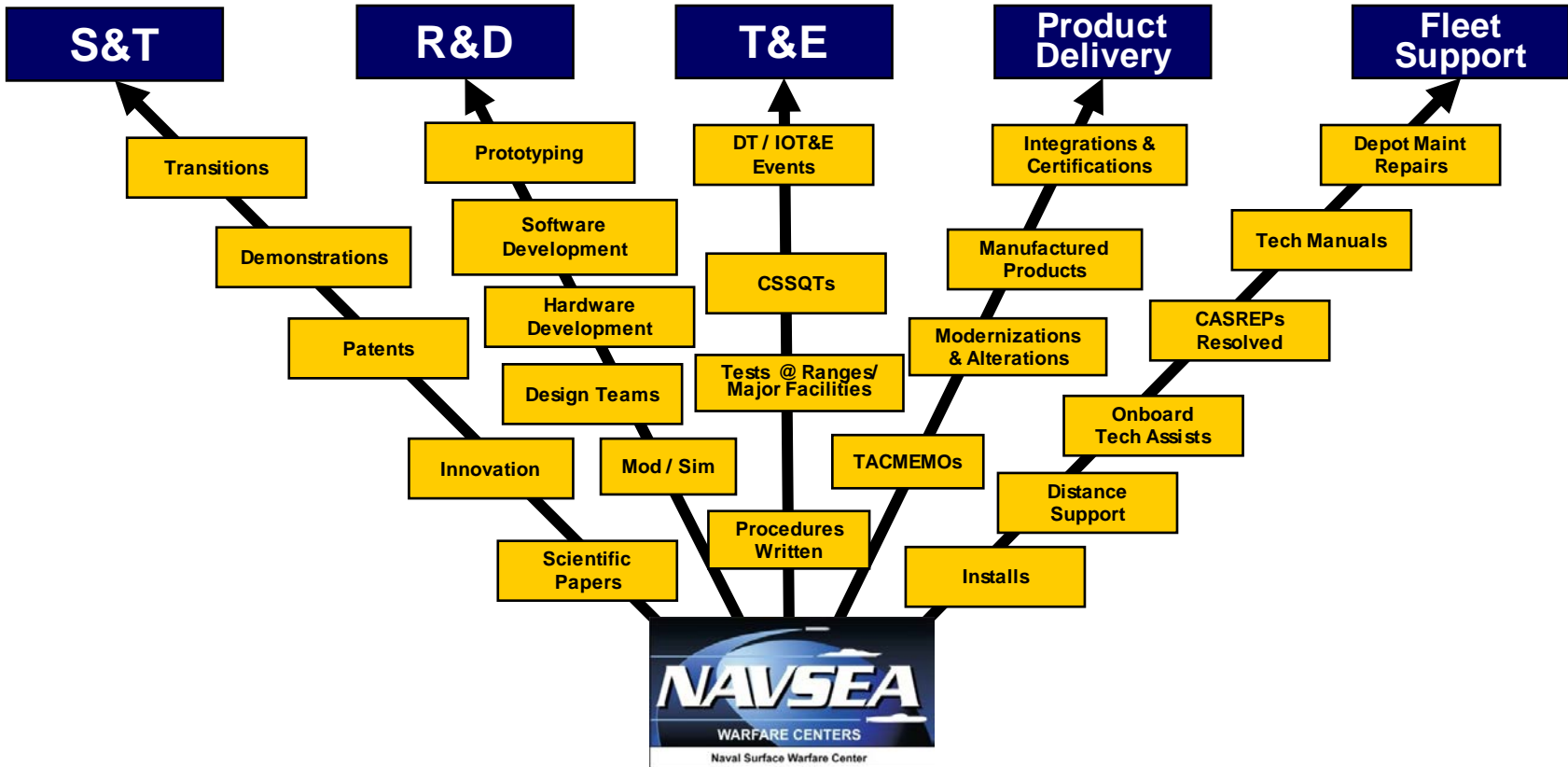
**Naval Surface Warfare Center  
Panama City Division**

**Littoral and Mine Warfare Systems Department**

# NSWC PCD Support to MIW

“Navy After Next”                      “Next Navy”                      “Current Navy”

Build an affordable future Fleet                      Sustain the current Fleet



Basic Research

Concept Development

Technology Development

System Development & Demonstration

Production & Deployment

Operations & Support

*S&T, Prototype, Experiments*                      *Transition*                      *Develop, Acq, Intro, Sustain*

NSWC-PCD supports “Current”, “Next”, and “After Next” MIW



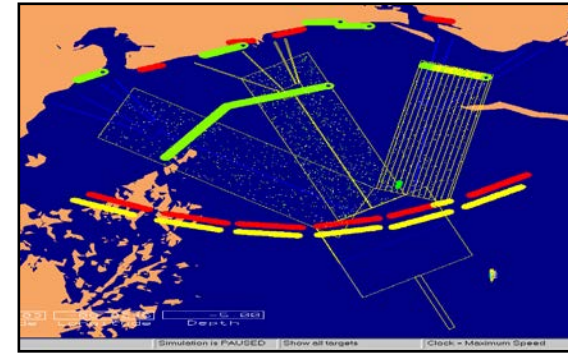
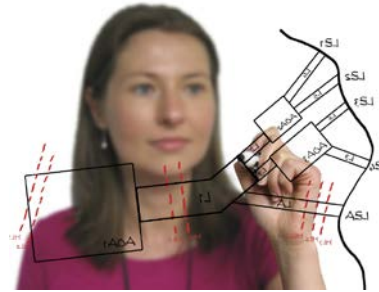
- Analyze Requirements
- Assess Technologies
- Systems Engineering
- Mod/Sim (NMWS, TMSS)
- Development of Prototypes
- Systems/Platform Integration
- Developmental Experimentation
- Respond to Urgent Needs (UONS)



**SMCM UUV**



**Sensor Experiments**



**Naval MIW Simulation**



**Simulation-based Training**



**UISS**



**COBRA**



**Sea Fox**



**Autonomous Littoral Warfare Systems Evaluator**

- Develop Test Plan/Procedures
- System Integration & Testing
- Development / Operational Tests
- Data Collection & Analysis
- System Performance Assessments
- Hardware/Software Certifications
- Collect System Reliability Data



ALMDS



AN/AQS 20



AMNS



RMS



Quickstrikes



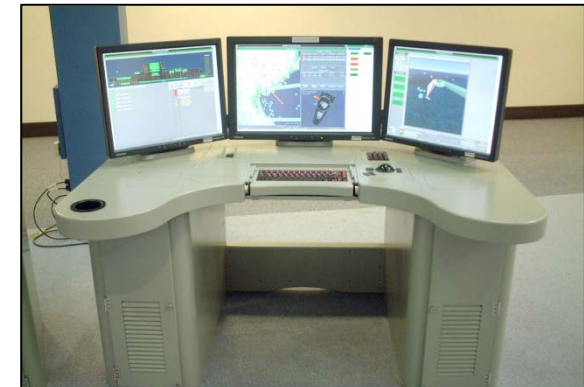
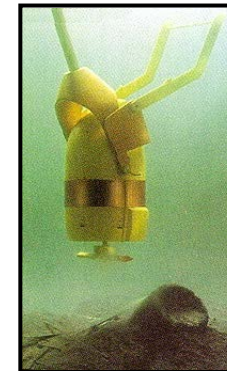
MCM Mission Modules



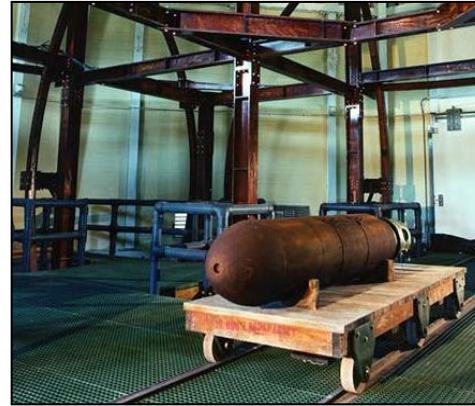
CMS



- Modernize Systems (P3I)
- Certify Systems
- Fleet System Introductions
- Acquisition Support
- Logistics Support Plan
- Training Procedures
- Technical Manuals
- UONS Response



- Distance Support
- Tech Assists
- Resolve CASREPs
- Depot Maintenance Repairs
- Threat/Susceptibility Analyses
- Tactics/Mission Evaluations
- Development of TTPs
- Life Cycle Sustainment
- Obsolescence Management
- Fly-away Teams



# Advanced Undersea Weapon System (AUWS)

- Support Quickstrike Mod 3 Improvements
- Build Transformation Capabilities (AUWS)

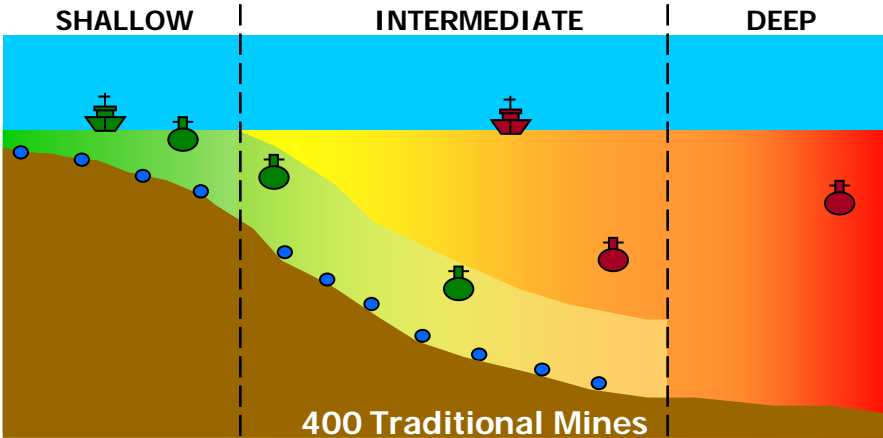
## Traditional Mining (strategic, autonomous, overt)



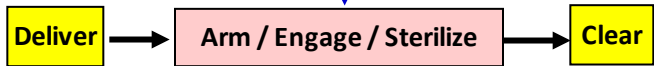
Quickstrike



SLMM



Autonomous



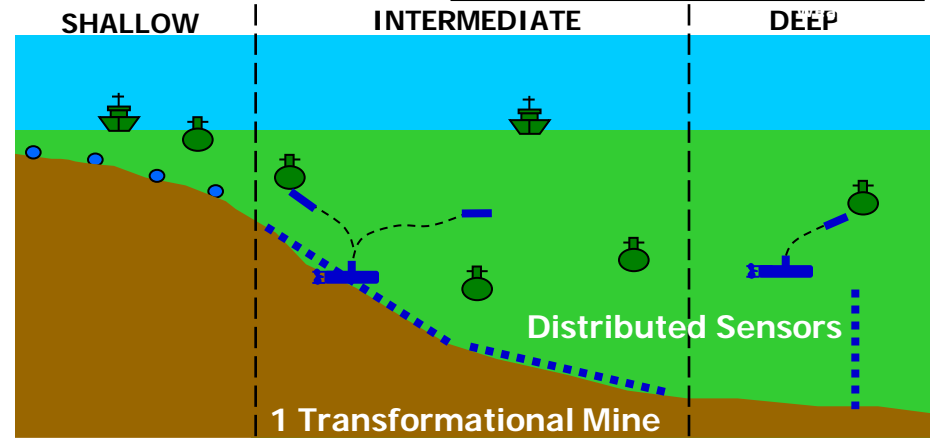
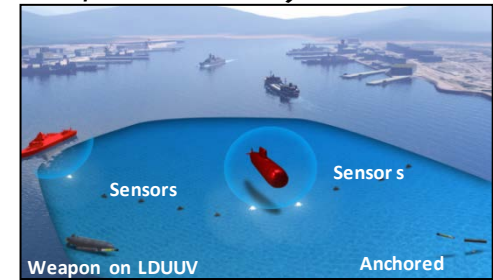
Hours Months Months

**Risky Delivery & Extensive Clean-up**

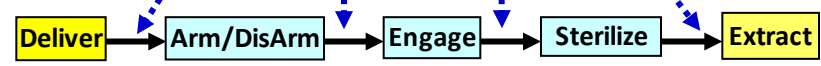
## Transformational AUWS (tactical, controlled, clandestine)



LDUUV with Sensor and Weapon Modules



Remote Control w/ Supervised Autonomy



Hours Minutes Minutes Minutes Hours

**Eases Delivery & Clean-up; Adds Tactical Flexibility**



- **A Robust MIW Capability Requires:**
  - Sustaining the Current Fleet’s Readiness
  - Rapid Fielding of Fully-Developed Systems Capabilities
  - Development of Future Capabilities
- **Need Enabling Technologies**
  - Accelerate Product Improvement and Other Technology Insertion Opportunities
- **Speed to Fleet**
  - Do the Systems Engineering and Integrated Logistics Early
  - Perform Disciplined Testing and Problem Resolution
  - Field Systems “Ready-For-Issue”

**It’s a Team Effort - - S&T through Sustainment**