National Small Business Conference

Mr. Richard McNamara

PEO Submarines

May 9, 2006

NAVAL SEA Systems Command
PEO-Submarine

- About NAVSEA/Team Submarine
- PEO-Submarine Small Business Plan
- Small Business Innovation Research (SBIR) Program
- SBIR Success Stories
- Advocacy
- Role of Small Business
- Available Websites

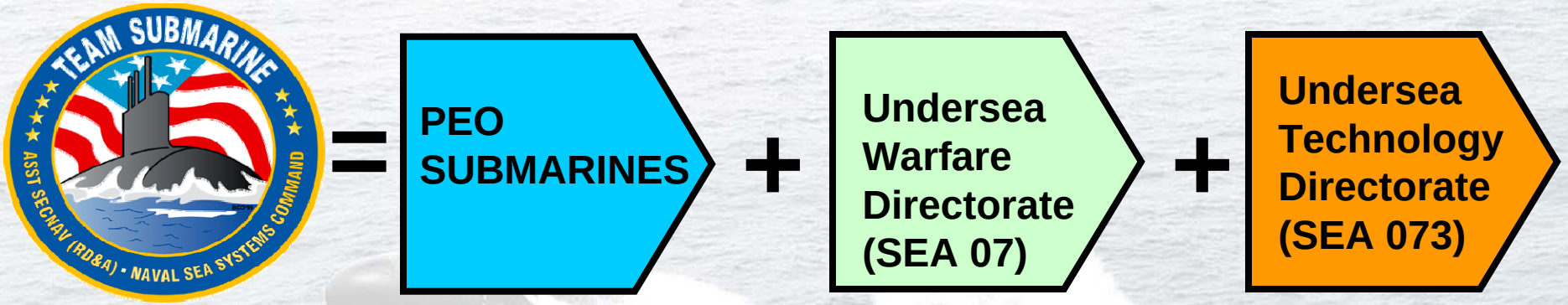
What is NAVSEA?

- The Naval Sea Systems Command
  - Largest of Navy's 5 systems commands
- Workforce of 50,000 at
  - HQ
  - 4 shipyards
  - Undersea and surface warfare centers
  - 9 supervisors of shipbuilding staffs
- Responsible for 1/5 of Navy budget ($20B)
- Manages > 130 acquisition programs
- Affiliated with 6 Program Executive Officers

Ensuring the Fleet is Capable and Ready
- Operating Around the Globe -

What is Team Submarine?

The Offices



PEO SUB
- Design, acquisition, and in-service support
- Management of new and emerging submarines and submarine systems.

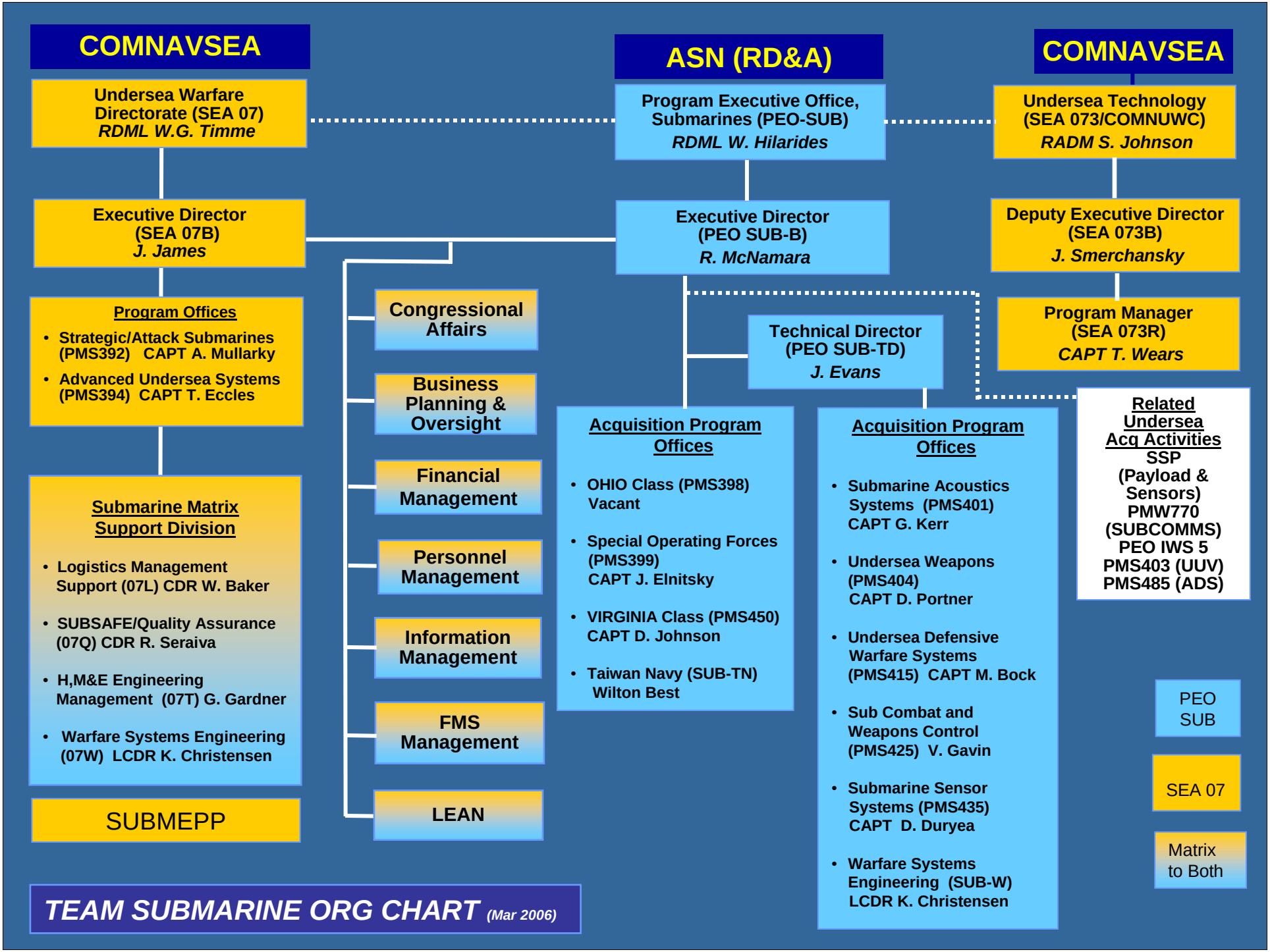
Undersea Warfare (SEA 07)
- Total ownership support for existing and emerging submarine platforms and systems.

Undersea Technology - including Directorate (SEA 073)
Single point of contact for all undersea initiatives research and development.

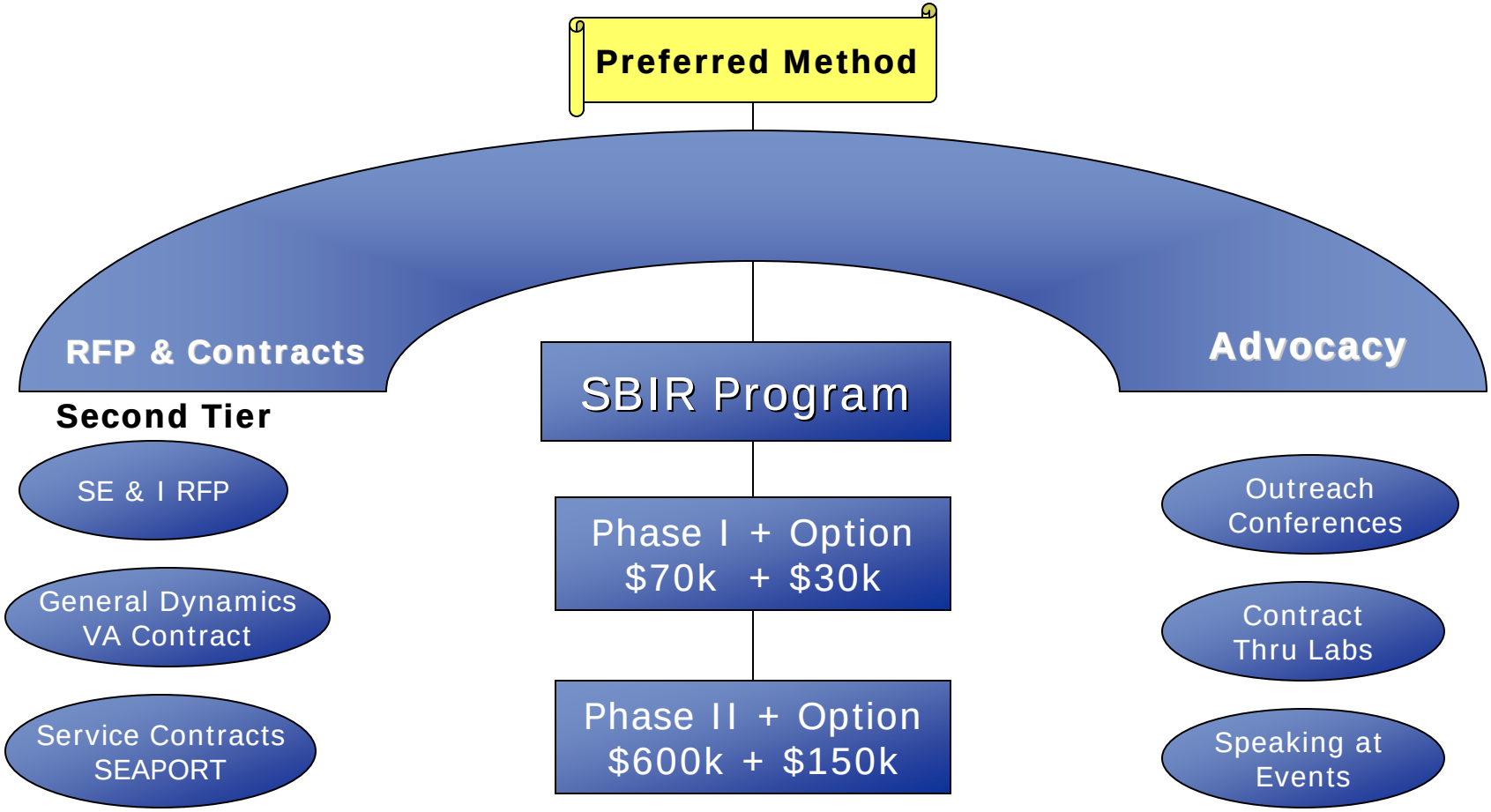
Who is Team Submarine? The People

- 652 military and civilian personnel located primarily at NAVSEA HQ
- 225 additional personnel at Submarine Maintenance Engineering Planning and Procurement (SUBMEPP)
- Assisted by
  - 2 private nuclear-qualified shipbuilders
  - Hundreds of contractors across the country

"An integrated team of professionals, dedicated to submarine safety and focused on affordability, who develop, acquire, modernize, and maintain the World's Best Submarines"


COMNAVSEA
Undersea Warfare Directorate (SEA 07)
RDML W.G. Timme
Executive Director (SEA 07B)
J. James
Program Offices
• Strategic/Attack Submarines (PMS392) CAPT A. Mullarky
• Advanced Undersea Systems (PMS394) CAPT T. Eccles
Submarine Matrix Support Division
• Logistics Management Support (07L) CDR W. Baker
• SUBSAFE/Quality Assurance (07Q) CDR R. Seraiva
• H,M&E Engineering Management (07T) G. Gardner
• Warfare Systems Engineering (07W) LCDR K. Christensen
SUBMEPP
Congressional Affairs
Business Planning & Oversight
Financial Management
Personnel Management
Information Management
FMS Management
LEAN
ASN (RD&A)
Program Executive Office, Submarines (PEO-SUB)
RDML W. Hilarides
Executive Director (PEO SUB-B)
R. McNamara
Technical Director (PEO SUB-TD)
J. Evans
Acquisition Program Offices
• OHIO Class (PMS398) Vacant
• Special Operating Forces (PMS399) CAPT J. Elnitsky
• VIRGINIA Class (PMS450) CAPT D. Johnson
• Taiwan Navy (SUB-TN) Wilton Best
Acquisition Program Offices
• Submarine Acoustics Systems (PMS401) CAPT G. Kerr
• Undersea Weapons (PMS404) CAPT D. Portner
• Undersea Defensive Warfare Systems (PMS415) CAPT M. Bock
• Sub Combat and Weapons Control (PMS425) V. Gavin
• Submarine Sensor Systems (PMS435) CAPT D. Duryea
• Warfare Systems Engineering (SUB-W) LCDR K. Christensen
COMNAVSEA
Undersea Technology (SEA 073/COMNUWC)
RADM S. Johnson
Deputy Executive Director (SEA 073B)
J. Smerchansky
Program Manager (SEA 073R)
CAPT T. Wears
Related Undersea Acq Activities
SSP (Payload & Sensors)
PMW770 (SUBCOMMS)
PEO IWS 5
PMS403 (UUV)
PMS485 (ADS)
PEO SUB
SEA 07
Matrix to Both
TEAM SUBMARINE ORG CHART (Mar 2006)

PEO-SUB Small Business Plan



How to Get Involved

SBIR vs. Small Business

SBIR

- Size – 500 people or less
- No Revenue Limits

Small Business

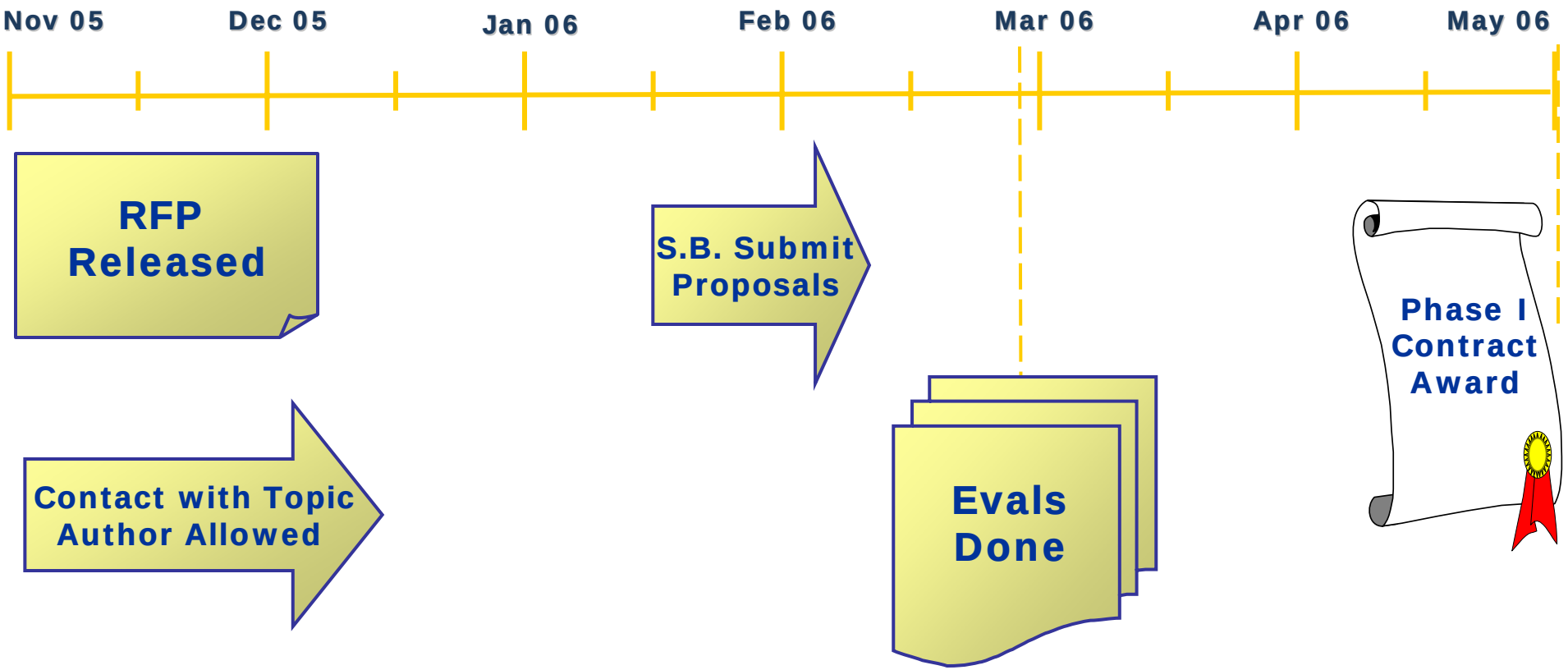
- Size: varies from industry to industry
  - People Based
  - Revenue Based

North American Industry Classification System (**NAICS**) Replaced the Standard Industrial Classification (**SIC**) Systems in October 2000

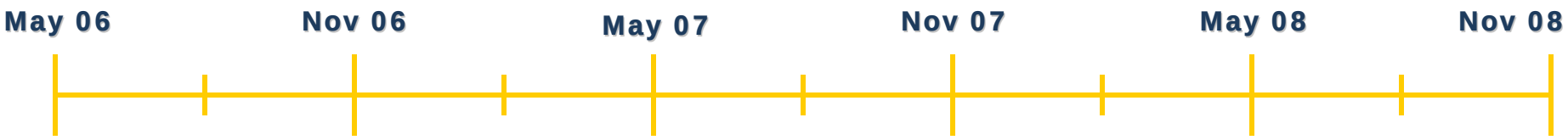
Take A Small Business "Test Drive"

- **Small Business Demonstration**
  - Small business ability to demonstrate their capabilities
  - Understand program requirements/needs
  - PM opportunity to work with small business
  - Forum to build confidence between PM & small business
  - A sorting process for PM's

SBIR Program Timeline



SBIR Program Timeline



Phase I — $70k

Ph I Option — $30k

Phase II — $600k

Ph II Option — $150k

Phase III — Full Scale Development

SBIR Sample Topic

N04-039 TITLE: Parametric Sonar to Enhance Torpedo Performance

TECHNOLOGY AREAS: Sensors
ACQUISITION PROGRAM: ACAT III; PMS404
OBJECTIVE: Improve active torpedo homing in shallow water by using parametric sonar in conjunction with conventional linear sonar.
DESCRIPTION: Non-linear parametric sonar provides the capability to generate relatively lower frequency acoustic signals with narrower beamwidths and nearly non-existent side lobes in contrast to its conventional linear sonar counterpart. These attributes of higher spatial resolution and side lobe elimination can potentially be used to achieve significant reductions in volume and surface scattering strengths in the reverberation-limited littorals and to realize significant reductions in false-alarm rate. Moreover, parametric sonar has the potential to discriminate small and large underwater objects in a frequency band not readily subject to acoustic countermeasures, thereby offering the added capability of a marked reduction in threat countermeasure effectiveness.

The key elements of establishing the feasibility and practicality of parametric sonar for torpedoes include (a) the feasibility and verification of high frequency parametric transduction and, via the medium, a lower (difference) frequency realization; (b) parametric sonar effectiveness against countermeasures; and (c) full-scale testing and verification of development features. Using existing torpedo transduction design, the capabilities of a parametric sonar need to be demonstrated in a realistic operational setting. Namely, two primary frequency sources emanating from the same array must be simultaneously transmitted into the medium [reference (1)]. The parametric difference frequency may be realized across a number of frequency bands, depending on the selected primary transmitted waveforms. A major part of this effort will entail optimizing the parametric receive band for reducing countermeasure effectiveness. Finally, full-scale tests will need to be conducted before transitioning this technology to the fleet.

PHASE I: Develop and demonstrate proof-of-concept for high frequency active parametric sonar applicable to tactical scale underwater vehicles (UUVs/weapons). Specifically, develop and demonstrate proof-of-concept for detection, classification, and decision-making with parametric sonar that enables the discrimination of small and large underwater objects in frequency bands not subject to countermeasure jamming. Verify concepts by analyses. The proof of concept should answer the following questions. What are the spectra of options for primary and secondary (difference) frequency selection based on existing torpedo transduction design? What are the design tradeoffs relating power efficiency, primary and difference frequency selections for minimizing threat countermeasure effectiveness and for maximizing torpedo homing performance? What are the (measured) realizable beamwidths of the parametric sonar beam? What are the (modeled) expected homing range performances of the parametric sonar, in the respective typical operating areas of interest? What are estimates of the typical volume and surface backscattering dependency as a function of frequency for these operational environments?
PHASE II: Prototype the high frequency transducer/array concept for parametric sonar and demonstrate capability of application to UUV/weapon application by static acoustic laboratory testing. Validate capability to avoid and penetrate countermeasure field during testing.
PHASE III: Provide full-scale operational torpedo prototype
and perform operational testing. Demonstrate the capability of parametric sonar to discriminate between target and countermeasure in a highly reverberant environment.

PRIVATE SECTOR COMMERCIAL (Dual-Use) POTENTIAL: Parametric sonar transmissions can produce low frequency narrow acoustic beams. Private sector applications include, as examples the medical field (ultrasonic imaging), marine industry (sea floor and sub-bottom profiling, acoustic communications [reference (2)] as well as other fields where non-obtrusive insonification may be desired [reference (3)].

REFERENCES:

1. R.T. Beyer, Nonlinear Acoustics, Van Nostrand Reinhold Company, 1984
2. A.H. Quazi and W.L. Conrad, Underwater Acoustic Communications, IEEE Communications Magazine (March 1982)
3. W. Von Winkle, Editor, Scientific and Engineering Studies: Nonlinear Acoustics 1953-1984, Naval Underwater Systems Center
4. J. Wunderlich and S. Müller, High-resolution sub-bottom profiling using parametric acoustics. International Ocean Systems, July/August 2003, pp. 6-11.

KEYWORDS: sonar; parametric; torpedo; homing; littoral; countermeasure

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SBIR Business Plans

- Continue leadership in SBIR Program
  - PM active involvement
- Get big business involved in transitions
  - Structure prime contracts to enable SBIR participation.
  - Early and often design disclosure
- Incentives for big businesses to transition SBIR
  - Fee Incentives
- Increase small business exposure to P.M.’s
- ONR Sponsored Technology Assistance Program (TAP)

SBIR Success Stories

Texas Research Institute

Generic Structural Composite Material, Phase II

Composite Launch Tube, Phase II

Composite Torpedo Fuel Tank, Phase II

Trident Systems

Submarine Combat System C4I Interoperability, Phase III

Mobile Computing for Submarine Applications (NTDPS), Phase III

Apply State of the Art Technology to Submarine Systems Maintenance, Phase II

Progeny

Technology Infusion, Phase III

COTS Approach to Information Security, Phase III

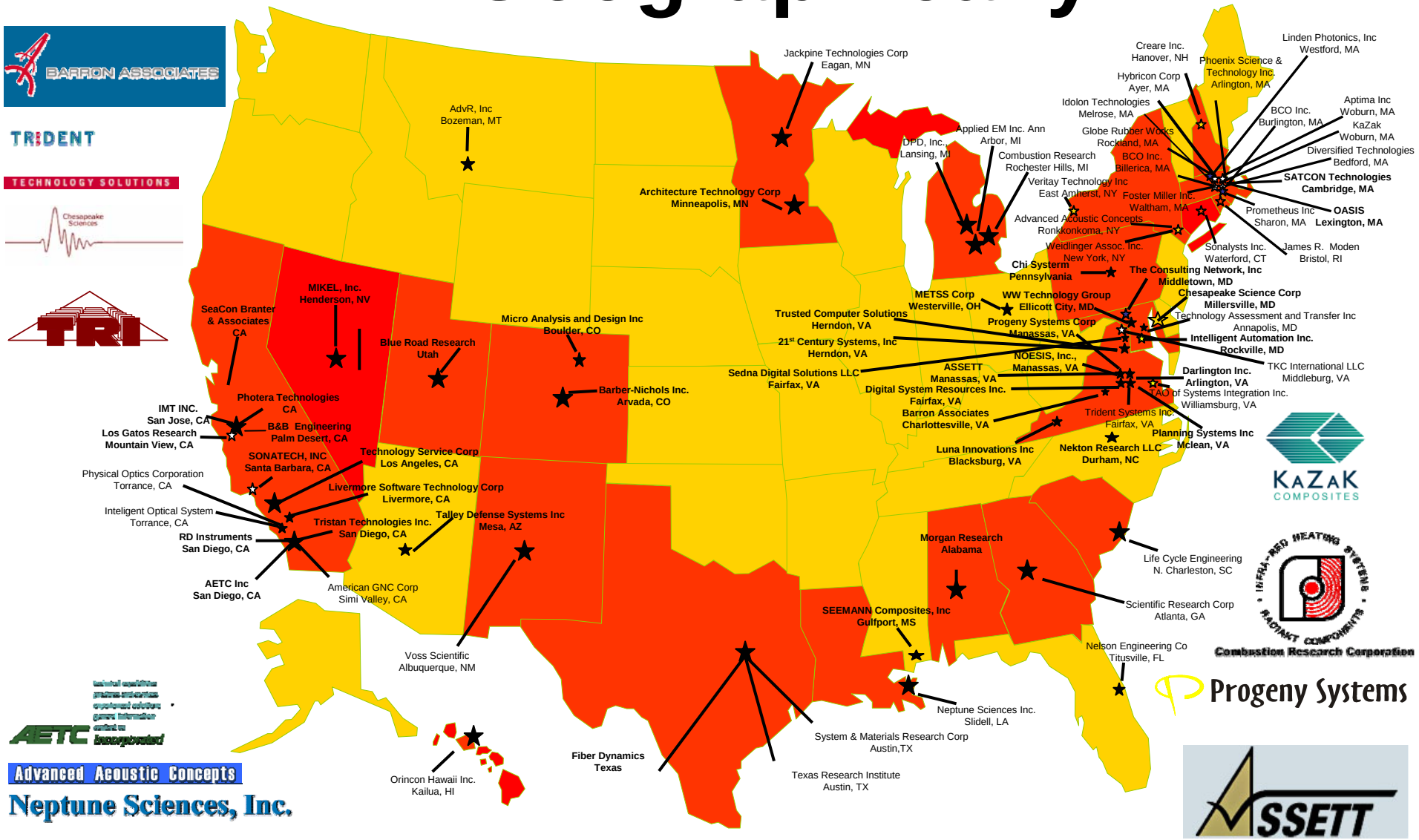
Innovative Signal Processing Concepts for Active Emissions, Phase III

3 Phoenix

Real Time Data Fusion, Phase III

Shallow Water Beamformer, STTR Phase II

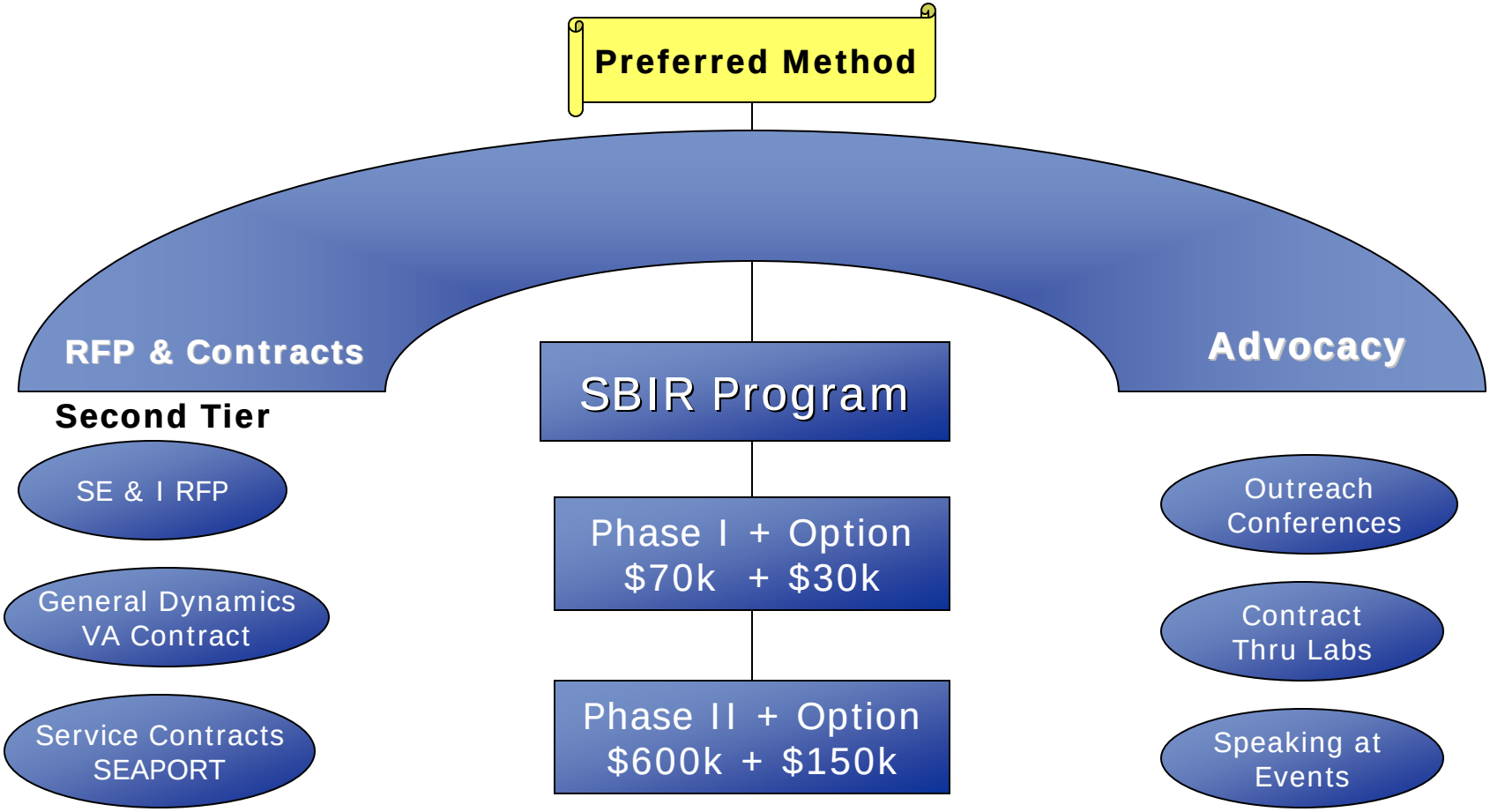
SBIR Program Geographically



Phase III Strategies

- Expand business opportunities for small businesses
- Develop PM’s understanding of streamlined contracting tool/techniques
- Reward PM’s who use small businesses
- Small businesses needs an advocacy
- Strive for Government’s small business goals

PEO-SUB Small Business Plan



RFP & Contracts

- Small Business Participation Required
  - Evaluated and Scored
- Contract Execution
  - Incentive Fee

Advocacy

- Women Owned Small Business (WOSB) Conference
- Participating in the Technology Assistance Program (TAP)
- Engage with Prime Contractor Business Leaders to promote partnerships with Small Business

Role of Small Business

- Innovative Thinking
- Agile Business Processes
- Lower Costs
- Provides Options

SBIR Web-Sites

www.acq.osd.mil/sadbu/sbir

www.navysbir.com

Databases

- Search the Navy Database for current topics:
  http://www.navysbir.brtrc.com/navysearch/search/search.aspx

- DoD SBIR/STTR Topics-Basic Search:
  http://www.dodsbir.net/Topics/Default.asp