

CEROS PROGRAM: CHANGING PERCEPTIONS

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CEROS INDUSTRY BRIEFING

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TODAY'S SCHEDULE:

- **CEROS Program Overview**
- **What CEROS Does**
- **What CEROS Needs**
- **Conclusion**



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CEROS PROGRAM OVERVIEW



CEROS solicits and supports innovative technologies for national maritime military applications and sustained technology-based economic development in Hawai'i

- Since 1993, the CEROS program produced significant results for the DoD including 9 patents and over 120 new tech-based jobs for participating companies in Hawaii (*Logistics Management Institute Report, February 2003*)
- Through June 2005, the CEROS program has received over \$79.6 million in federal funding and has funded 181 projects for over \$68.9 million
- FY05 DoD funding for CEROS was \$7 million



CEROS Program Priorities

- ➔ Focus Core technical program on maritime military technology needs
- ➔ Emphasize innovative technical development and demonstrations
- ➔ Solicit and support technically important projects with transition potential
- ➔ Enhance sustainable commercial technology capabilities in Hawaii
- ➔ Maintain program quality, control costs and deliver results



CEROS “Grand Plan” for 2005:

- **Revise CEROS Procurement Plan to satisfy DARPA and State requirements**
 - Maintain program autonomy, efficiency, and effectiveness
 - Apply for Exemption from State Procurement Code for FY06 selection process
- **Fund for Success**
 - Improve project selection and oversight
 - Maximize military utility and follow-on potential of results



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WHAT CEROS DOES



Project Selection and Oversight:

- Fund capable companies
- Address specific command- or system-relevant technical problems and objectives
- Match local capabilities with command technical needs
- Involve the potential “consumer” throughout the process
- Increase in-process oversight to maintain project focus and enhance chances of success

Successful projects sustain and validate CEROS

CEROS PROGRAM EXPLAINED

- *CEROS solicits and supports innovative technologies for maritime military applications and sustained technology-based economic development in Hawaii*
- *CEROS supports projects in 3 areas of exploratory technical development from proof to product*

1 - PROOF-OF-CONCEPT “PLANT”

- ➔ Test utility of a technical concept
- Output: Technical Context + Limits
 - Typically “modest” Initial Cost
 - Duration: 6 – 12 months

2 - FEASIBILITY DEMONSTRATION “GROW”

- ➔ Develop an application-oriented technology
- Output: Prototype Hardware
 - Typically “higher” Annual Cost
 - Duration: 12 – 24 months

3 - PRODUCT DEVELOPMENT “HARVEST”

- ➔ Apply development to specific military or commercial purpose
- Output: Technical Application, Device or System
 - Cost Varies: Depends on Product
 - Duration: <12 months

CEROS PROGRAM RESULTS

- *Through June 05, the CEROS program has funded 181 projects for \$68,987,954*
- *Since 1993, CEROS has provided advanced technology to SUBPAC, PACFLT and SOCOM and supported creation of over 120 technology-based jobs in Hawaii*

PROOF-OF-CONCEPT PROJECTS

Examples:

- Antibiotics from marine algae
- Fouling-resistant netting
- Tropical heavy metal biomonitors
- Diver homing device
- Lifting Body design + analysis
- Pre-buckled cylindrical housing

FEASIBILITY DEMONSTRATIONS

Examples:

- Operational MIDFOIL vessel
- Net-centric, Air-deployed Portable Range
- Bottom- Penetrating Synthetic Aperture Sonar System
- Airborne Hyperspectral Sensor System
- TNT Measurements in seawater

PRODUCT DEVELOPMENTS

Examples:

- ARCI-certified submarine ASW algorithms (ORINCON)
- LIFEFLOAT inflatable for SOCOM test + evaluation (SEE/RESCUE)
- SeaPLOT tracker/plotter for *Lincoln* Battle Group (Oceantronics)
- MakaiPLAN: world standard cable lay planning + control software

Plant: Navatek, Ltd. invented the MidFoil Lifting Body watercraft concept and proved its feasibility



Grow: Net-centric Air-deployed Portable Range (BBNT)

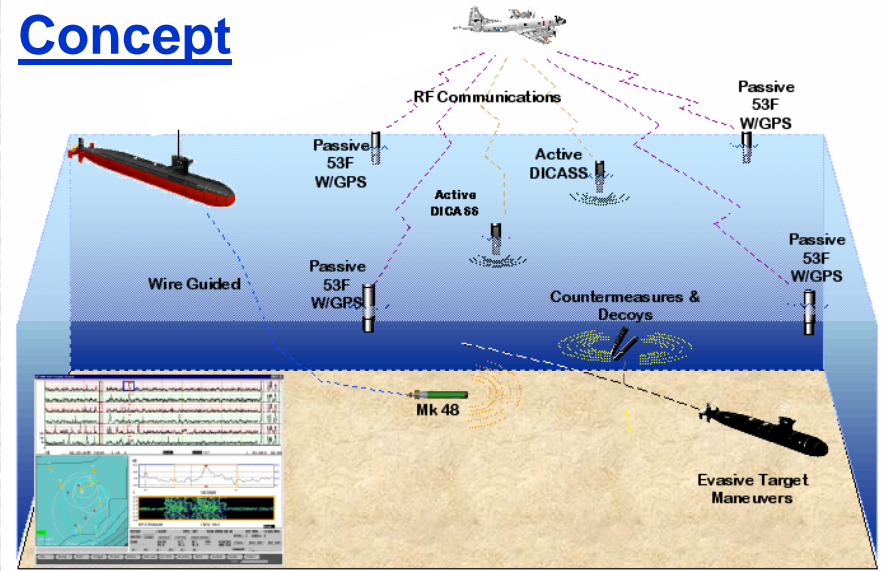
Need

- Exploit off-board sensors to provide “off-range” pinger tracking
- Localization and identification of pinger equipped targets & weapons
- Allow tactical development exercises in shallow water / adverse areas
- Post test reconstruction capability

Approach

- Exploit legacy tactical data channels
- Utilize GPS equipped sonobuoys
- Provide processing on COTS PCs combined with NetSAT/Netted CCS
- Leverage Distant Thunder initiation of flight certified system
- Leverage NAPR to field the developed NetSAT/Netted CCS

Concept



Plan

- Leverage DARPA/CEROS developed technologies with successfully executed field demonstrations
- Leverage positive feedback from SUBPAC along with demonstrated ability to work with the Navy and transition labs to bring the developed technology to fielded tactical exercises





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WHAT CEROS NEEDS



Maximize Potential for Follow-on Success

- Begin with the end in mind
- Build from both ends:
 - CEROS Topic Areas
 - Relevant DoD high-level needs
- Define a CEROS-sized problem
- Stay with the program

Don't expect CEROS to do things you should do yourself



Subject areas of interest include:

- (1) **Shallow Water Surveillance Technologies**, emphasizing innovative approaches to collection, processing and presentation of information from and about the maritime operational environment.
- (2) **Ocean Environmental Preservation**, emphasizing innovative system development and demonstrations for ocean environmental sensing, remediation, monitoring and control.
- (3) **New Ocean Platform and Ship Concepts**, emphasizing development and demonstration of innovative designs, advanced structures or improved techniques.
- (4) **Ocean Measurement Instrumentation and Ocean Engineering Tools**, emphasizing development and demonstration of advanced sensors, innovative undersea systems or facilities, and new techniques for undersea measurement, modeling, prediction and data exploitation.
- (5) **Unique Properties of the Deep Ocean Environment**, emphasizing new techniques to identify or exploit unique properties, conditions, materials, products or potential of the deep ocean for enhanced maritime operational capability.

From Solicitation CEROS-CORE-05-01



Demonstrate and Produce:

- Hawaii tech community lacks sense of urgency
 - Limited knowledge of what's "inside the loop"
 - Perception: don't know what, don't know how, or don't care
- Goal: move results to "legitimate" program
 - Program of Record (A+)
 - Contribution to valid developmental program
- Team to amplify local capabilities + results

Use CEROS to show what you've got and what you can do



Begin with the End in Mind

- “Mine” requirements for potential applications
 - Too many nifty results go nowhere – Why?
- Aim for commands responsible for S&T developments + Improvements
 - e.g. METOC (Oceanit) or NavOceanO (OIC, Inc.)
- Aim for a Phase II SBIR
 - Leverage CEROS Support for better result quicker
 - How do I get to Phase II?

Get to know SBIR, Enterprise Honolulu and HTDV



Define a CEROS-sized Problem:

- What is the context for the idea?
- What is the SOTA in this technology?
- Why this approach (and not others)?
- What is technically important or challenging
- What's new?
- Who cares?
 - Who is interested in the result? (name names)
 - Will they contribute to follow-on development?

No set formula – each project is different



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Anatomy of a Proposal (or Proposal Abstract):

- What's the problem?
- Why is the problem important?
- What's your proposed technical solution?
- What will you produce and deliver?
- Who will do the work and when?
- What will it cost?
- What is the value of proposed result?

Seek to convince, not sell



Typical Reasons Proposals Miss the Mark (1):

- Lack of organization and clarity
 - Too general; specifics lacking
 - Too many adjectives; too few numbers
- Lack “fit” with CEROS topic areas and focus
 - No relevance to DoD needs
 - Too much R and not enough D
- Failure to identify the technical problem
- Failure to define end products and deliverables
- No plan to exploit the result

Don't propose solutions looking for problems



Typical Reasons Proposals Miss the Mark (2):

- Failure to define performance characteristics and metrics
 - Must be fully rationalized in full proposal
- Proposed effort is impossible
 - “Another perpetual motion machine” – T. Kooij
- Proposed effort possible but impractical
 - Good idea but wrong solicitation
- Cost guessing

Don't try to blow smoke in the jurymen's eyes



Typical Reasons Proposals Miss the Mark (3):

- Value of work not evident
 - Value includes Cost, Schedule and Expected Results
 - Technical Quality greatly enhances Value
- Company not capable or qualified for the task
 - Technical domain knowledge
 - Business capability
- Project costs too much for proposed result
 - Budget is opaque or “guesstimate”
 - Cost-saving efforts lacking or not described
- Cost benefit to the DoD not evident

Don't promise more than you can deliver



Project Selection and Focus:

- Edgy (but manageable) thinking
- Address specific need with significant technology
- Foster new ideas, new companies and new approaches
- Capable, committed and legitimate companies
- Leverage success in HTDV, SBIR projects or matches with large DoD integrators
- Resist post-award task bloat and schedule creep

Quality proposals, plans and products



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CONCLUSION



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- **The CEROS Program survives only by remaining Relevant, Productive, and Efficient**



- ***Use CEROS to show what you've got and what you can do***
- ***Don't expect CEROS to do things you should do yourself***
- ***Get to know SBIR, Enterprise Honolulu and HTDV***
- ***No set formula – each project is different***
- ***Seek to convince, not sell***
- ***Don't propose solutions looking for problems***
- ***Don't try to blow smoke in the jurymen's eyes***
- ***Don't promise more than you can deliver***
- ***Quality proposals, plans and products***
- ***Successful projects sustain and validate CEROS***



FY06 Tentative Plan for CEROS:

- Post Solicitation: October 3
- Project Abstracts Due: November 3
- Request Full Proposals: December 14

Watch the Website: www.ceros.org