



NDSF 2016 Operator's Report

Nereus Legacy Fund

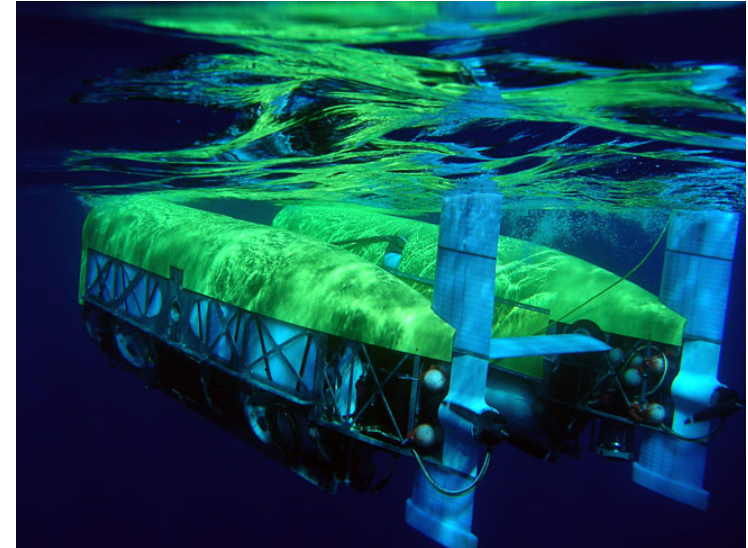


NLF Guiding Principles

- Develop deep submergence technology with broad impact
- Enable new operational paradigms and open new realms to scientific enquiry
- Deliver deep submergence tools that enhance ocean science

NLF Project criteria

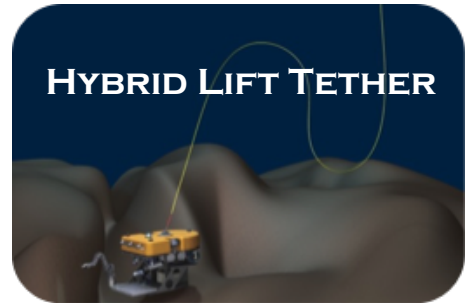
- Benefit a wide range of DSV users
- Provide synergistic opportunities (material or otherwise) between vehicles
- Provide leveraging opportunities for future growth
- Provide mechanism to continue development of forward-looking tools for deep submergence science





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OBJECTIVE: Complete the development of a hybrid lift tether begun as part of the *Nereid* HT vehicle project to enable single-body ROV operations.

INVESTMENT: \$182,668 (cost share with Dalio)

STATUS: New hybrid tether manufactured; testing underway. Field trial scheduled for August 2016.



OBJECTIVE: Develop capability to autonomously monitor and control AUV *Sentry* to enable more efficient dual vehicle (or ship) operations by removing the need for a proximal surface vessel tender.

INVESTMENT: \$402,024

STATUS: Obtained ASV. Plan to install acoustic comms this summer and begin software development. Target sea trial in Q1/Q2 of 2017.



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OBJECTIVE: Execute the necessary engineering studies that roadmap the final stages of the 6,500m upgrade. Conduct power model and energy analysis, conduct variable ballast and arrangement model trade studies.

INVESTMENT: \$405,606

STATUS: Conducting power requirements analysis to identify opportunities for improved efficiencies. Thruster motors and battery bus are targets. Modelling VB and HP air systems for 6500 m.



OBJECTIVE: Ground-up, science-driven, phased hadal program leading towards vehicle development. Workshop to define science priorities, initial design of smart-lander followed by addition of mobile assets for hadal investigations.

INVESTMENT: \$100,000/~\$800,000 (cost share with DSC)

STATUS: Community-wide survey results indicate strong desire for ROV capabilities at hadal depths. Engineering plan underway, identifying risks and mitigation strategies. Planning Phase II.

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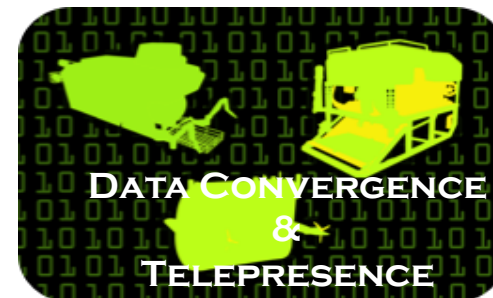
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OBJECTIVE: Transition NUI into a science-ready vehicle for routine high-latitude operations. Acquire/replace hardware and develop software to address issues from initial deployment in preparation for field trials.

INVESTMENT: \$823,923

STATUS: Completed software upgrade and successfully tested on Armstrong SVC 4 in AUV mode. Received new manipulator which will be integrated in June. Upgraded acoustic system. Will deploy to 87° N in Q4 2016.



OBJECTIVE: Develop a common automated data processing pipeline, data tracking and delivery system, determine benefits of telepresence-enabled on-shore data processing.

INVESTMENT: \$300,000

STATUS: Completed draft study, focused on telepresence and tracking for NDSF data streams.