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14. ABSTRACT

The Academy of Applied Science (AAS), Concord, New Hampshire, utilized funds provided by the Office of Naval Research, Arlington, VA, under Grant N00014-03-1-0549 to support the Naval Science Awards Program (NSAP). This effort included:

- (1) undergraduate scholarship payments to colleges and universities being attended by ONR's science fair scholarship recipients;
- (2) the acquisition of educational recognition awards for students that are participating in NSAP venues; and
- (3) expenses of educational outreach activities.

The NSAP provides recognition, incentives, and scholarships to precollege students who engage in nationwide regional and state science fairs. The NSAP endeavor is aimed at increasing students' awareness of ONR's and the Navy's scientific research, in general, as well as encouraging the future pool of trained talent prepared to conduct research and development vital to our nation and to the Naval Research Enterprise.

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Abstract

The Naval Science Awards Program (NSAP) is intended to increase students' awareness of ONR's and the Navy's scientific research, in general, as well as helping to foster a mutually beneficial relationship between talented students and the Naval Research Enterprise (NRE). The Academy of Applied Science (AAS) supported NSAP by assuring that pre-college students who engaged in science fairs were provided with appropriate recognition, incentives, and scholarships designed to increase students' awareness of ONR's and the Navy's scientific research, in general, as well as encouraging the future pool of trained talent prepared to conduct research and development vital to our nation and to the NRE.

Description of effort

The Academy of Applied Science (AAS), Concord, New Hampshire, provided managerial and administrative support of the Naval National Science Awards Program (NSAP) under separate contract with the Office of Naval Research, Arlington, Virginia. This report summarizes the activities conducted under the grant for the period 23 February 2003 - through 30 September 2007. A total \$942,027.00 was expended in support of NSAP activities. The annual fiscal year breakdown by budget category is reported below.

Grant – Budget category	Expended 10/1/02- 9/30/03	Expended 10/1/03- 9/30/04	Expended 10/1/04- 9/30/05	Expended 10/1/05- 9/30/06	Expended 10/1/06- 9/30/07
1. Scholarships – undergraduate scholarship payments to colleges and universities being attended by ONR's science fair scholarship recipients	\$100,000	\$111,000	\$ 97,666	\$131,666	\$132,666
2. Educational recognition awards – For presentation to students who participated in NSAP venues	42,057	36,923	43,675	46,210	38,372
3. Outreach – Specific NSAP activities that may increase awareness among students and teachers of the opportunities within the Naval Research Enterprise (NRE).	26,146	50,856	25,042	42,522	17,226
Total grant expended, by FY	\$168,203	\$198,779	\$166,383	\$220,398	\$188,264

Specific activities are reported in the subsequent pages of this report under the categories of Scholarships, Educational Recognition Awards, and Outreach.

Scope of effort

NSAP includes Navy and Marine Corps participation in approx. 350 regional and state science and engineering fairs held nationwide, the National Ocean Sciences Bowl, and the Naval Sea Cadets Program. Approximately 350 regional and state science fairs annually participate in NSAP and register their request for affiliation with NSAP at an ONR website. Once registered, ONR arranges for qualified Navy and Marine Corps personnel within commuting distance of a fair to attend and serve as judges and awards presenters.

Presently over 2,000 eligible students who present their research in nationwide regional and state science fairs receive Navy and Marine Corps recognition and awards on behalf of ONR. Junior awards are presented to students in Grades 6 – 8 and senior awards are presented to students in Grades 9 – 12.

An additional 1,200 senior award recipients (or high school students) receive an educational recognition award valued at \$50.00 for finalists from regional science fairs and \$75.00 for finalists from state science fairs. This requires the senior award recipient to follow-up with the Academy to claim the award. This direct contact allows the Academy to establish relationships with the 1,200 senior award recipients from the regional and state science fairs.

Progressing from the regional and state science fairs, student winners attend the annual International Science & Engineering Fair (ISEF). The Navy and Marine Corps judging panel attend ISEF to select twenty-two (22) scholarship winners from a pool of approximately 800 students.

The total NSAP scholarship award to each student is \$8000, payable at \$2,000 per year for each of four years. Students that have participated in a team project at the ISEF will each receive \$1,000 for four years. Beginning in FY 2007, NSAP scholarships were awarded to each of 17 category winners, to 3 projects demonstrating research of Navy relevance, and to 2 students who have completed a team project. From FY 2003 – FY 2006, NSAP scholarships were awarded to each of 14 category winners, up to 2 projects demonstrating research of Navy relevance, and to 2 students who completed a team project.

The Academy of Applied Science administers the scholarship awards payable to the student's institution of higher learning. Scholarships are contingent upon the student meeting a specified GPA requirement and majoring in a STEM discipline.

Scholarships Reported annually to ONR under separate contract agreements are all scholarship payables by fiscal year. Attachment 1 presents a summary of all scholarships awarded by ONR during the period of this grant. This report includes date of award, name of recipient, college or university of enrollment, and payment due dates.

During this reporting period, a total 98 students were awarded NSAP scholarships at the annual International Science & Engineering Fair (ISEF). An additional 42 students received NSAP scholarships, with this group selected under a previous ONR program.

Scholarship payment is based upon the students' date of matriculation. A review of scholarships awarded, paid, and remaining by FY follows:

- **FY 2003:** AAS administered scholarship payments to a total fifty (50) NSAP student recipients at a total \$8,000 per recipient, or \$2,000 per year for each of four years. Among the total 50 students, 39 were NSAP recipients in past years and 11 were NSAP recipients in FY 2003.
- **FY 2004:** The AAS administered scholarship payments to a total 56 NSAP student recipients at a total \$8,000 per recipient, or \$2,000 per year for each of four years. Among the total 56 students, 42 were NSAP recipients in past years and 14 were NSAP recipients in FY 2004.
- **FY 2005:** AAS administered scholarship payments to a total fifty (50) NSAP student recipients at a total \$8,000 per recipient, or \$2,000 per year for each of four years. Among the total 50 students, 43 were NSAP recipients in past years and 7 were NSAP recipients in FY 2005.
- **FY 2006:** AAS administered scholarship payments to a total sixty-six (66) NSAP student recipients at a total \$8,000 per recipient, or \$2,000 per year for each of four years. Among the total 66 students, 51 were NSAP recipients in past years and 15 were NSAP recipients in FY 2006.
- **FY 2007:** AAS administered scholarship payments to a total sixty-eight (68) NSAP student recipients at a total \$8,000 per recipient, or \$2,000 per year for each of four years. Among the total 68 students, 60 were NSAP recipients in past years and 8 were NSAP recipients in FY 2007.
- **FY 2008 and beyond:** A total \$314,000.00 in NSAP scholarships are due from 2008 – 2013 to approximately 60 students who were awarded scholarships during the current grant.

Outreach – A total \$161,972.00 has been expended during this reporting period in support of NSAP outreach efforts. Primary support was provided to publicize NSAP to nationwide, community based regional and state science fairs. Brochures and mailings were the primary vehicles used to publicize NSAP to approximately 360 affiliated regional and state science fairs held each year. Materials distributed to organizers of science fairs included brochures describing ONR's outreach programs to encourage, stimulate and support research endeavors by undergraduate and graduate students, correspondence describing the goals and objectives of NSAP, certificates of achievement signed by the

Chief of Naval Research and the Vice Chief of Naval Research and for presentation to NSAP student recipients, and forms to publish the procedures by which NSAP student recipients could select and claim the NSAP educational recognition award, or gift certificate.

Other outreach activities supported under the NSAP grant included the below items as directed and coordinated in cooperation with the ONR Project Manager.

1. Acquisition and Distribution of Specialty Award Items for ONR use in recognizing both contributing volunteers and participating students. These items have included:

- 22 Lone sailors for presentation to 22 NSAP scholarship winners, International Science & Engineering Fair (ISEF) (Annual expenditure)
- ONR medallions for presentation to NSAP high school and junior high students participating in a total 338 regional and state science fairs held throughout the United States. (Annual expenditure)
- ONR lapel pins for ONR distribution at ISEF and the National Science Teachers Association annual convention. (Annual expenditure)
- ID badge holders for ISEF judges and JSHS National participants. (Annual expenditure)
- Tote bags for JSHS National participants.
- Travel kits imprinted with the ONR logo and for distribution to volunteers participating in the National Ocean Sciences Bowl (NOSB) (Annual expenditure through FY 2006)
- Reception for ISEF judges. (Annual expenditure through FY 2006)
- Exhibit for ONR participation at the National JSHS symposium and other youth science conferences.
- Postcards for use by Navy and Marine Corps personnel serving as judges of student projects. (Annual expenditure)
- Award certificates for NSAP high and junior high science fair recipients.
- Navy pens (269 packets /12 pens each) were mailed to 230 judges to distribute to NSAP science fair participants. (FY 06 only)
- Director's meeting at the 2005 JSHS National in San Diego
- Photography at ISEF

2. Attended the International Science and Engineering Fair (ISEF) to provide support assistance to ONR in program administration and in manning the ONR exhibit. (FY 2003 only)

3. Coordinated with the National Ocean Sciences Bowl and the Scripps Institution of Oceanography hosted Oceans 2003 Conference.

4. Creation of a "prototype" education program for ONR targeting of Advanced Placement science and mathematics teachers and students in high school. The prototype is under development by Lifetime Learning Systems, Inc., a division of the Weekly Reader Corporation, for the Academy of Applied Science on behalf of ONR. (FY 2006 only)

5. Development and production of an exhibit to publicize the pre-college youth science activities administered by ONR.

6. Developed briefs for Navy and Marine Corps personnel supporting NSAP and other pre-college youth science activities. Coordinated with appropriate reserve officers and ONR to develop and distribute.

Educational Recognition Awards. A total \$207,237.00 was expended during this reporting period. Navy and Marine Corps personnel annually participate in affiliated regional and state science fairs as judges and awards presenters. These military personnel publicly recognize eligible NSAP student recipients at the awards ceremony of each regional or state science fair and present an "Awards Verification" form to claim the NSAP educational recognition award. The NSAP educational recognition awards are gift certificates valued at \$75.00 for state science fair award recipients and \$50.00 for regional science fair award recipients.

The AAS distributed a total 3,576 educational recognition awards to the home address of NSAP student award recipients during the reporting period of this grant. Total awards by FY are:

FY 2003	Total 544 awards distributed
FY 2004	Total 694 awards distributed
FY 2005	Total 845 awards distributed
FY 2006	Total 758 awards distributed
FY 2007	Total 735 awards distributed

Deliverables. Ongoing follow-up with NSAP regional student recipients and ISEF scholarship recipients resulted in the gathering of information on students' educational and career achievements in STEM. Collected data was entered into AAS databases and listings and reported to ONR under the separate contract. Resulting from the interaction with NSAP student recipients, approximately 3,200 students expressed an interest in receiving further information on research opportunities as well as undergraduate and graduate level research experiences within the Naval Research Enterprise.

NSAP Grant N00014-03-1-0549
Scholarship Payments and Obligations

Award Year	Last Name	First	College	due 2003	due 2004	due 2005	due 2006	due 2007	due 2008	due 2009	due 2010	due 2011	due 2012	due 2013
2001	Cox	Geneya	Southern Utah University	2,000				2,000						
2001	Lisanti	Mariangela	Harvard University	2,000	2,000									
2001	Millet	Lacey Ann	Centenary College of Louisiana	2,000	2,000									
2001	Murti	Suvarna	Rhodes College	2,000	2,000	2,000	2,000							
2001	Myers	Terri	Purdue University	2,000	2,000									
2001	Patterson	Ryan	University of Colorado Boulder	2,000	2,000	2,000								
2001	Rothschild	Jeremiah	University of Maryland	4,000										
2001	Schuh	Scott	Winona State University	2,000	2,000									
2001	Song	Francis	Harvard University	2,000	2,000	2,000								
2002	Antonioli	Alexandra	Yale University	0	4,000		4,000							
2002	Cheng	Wayne	Cornell University	2,000	2,000	2,000								
2002	Cossairt	Brandi	California Institute of Technology	2,000	2,000	2,000								
2002	Goodrich	Kristen	University Of Miami	2,000	2,000	2,000								
2002	Jain	Aman	University of Texas - Austin	2,000	2,000									
2002	Knight	Mark	Carleton College	2,000	2,000	2,000								
2002	McGaha	Rebecca	Washington University		2,000	2,000								
2002	Mergler	Natalie	St. Louis University	2,000	2,000	2,000	2,000							
2002	Morrow	Matthew	Indiana University	2,000	2,000	2,000								
2002	Norwood	Emily	Washington University in St. Louis	2,000	2,000	2,000								
2002	Rozenblyum	Nikita	Harvard University	2,000	2,000	2,000								
2002	Sinha	Naveen	Stanford University	2,000	2,000	2,000	2,000							
2002	Tewksbury	Carolyn	Smith College	2,000	2,000	2,000	2,000							
2002	(Gutman)		West Liberty State University											
2003	Brammer	Sarah	Harvard University			1,017	4,983	2,000						
2003	DeObaldia	Maria	Harvard University		2,000	2,000	2,000	2,000						
2003	Drury	Hollilyne	University of Utah	1,000	1,000	1,000								
2003	Glukhovsky	Lisa	Princeton University		2,000	2,000	2,000		2,000					
2003	Grover	Vaishali	Northwestern University			2,000	2,000	2,000	2,000					

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Award Year	Last Name	First	College	due 2003	due 2004	due 2005	due 2006	due 2007	due 2008	due 2009	due 2010	due 2011	due 2012	due 2013
2004	Pizer	Michael	Princeton University				2,000	2,000	2,000	2,000				
2004	Ramachandran	Reshma	Brown University			2,000	2,000	2,000	2,000					
2004	Ramjeawan	Khaivchandra	George Washington University		2,000		2,000		4,000					
2004	Sloyer	Michael	Duke University		2,000	2,000	2,000	2,000						
2004	Sparling	Brian	MIT		2,000	2,000	2,000	2,000						
2004	Verlinden	Christopher	United States Coast Guard Academy		1,000		2,000	1,000						
2004	Yen	Christopher	Harvard University		2,000	2,000	2,000	2,000						
	(Van Prooyen)													
2005	Hunter	Sheila Marie	Portland State University			2,000	2,000	2,000	2,000	2,000				
2005	Abdulrasool	Ameen	University of Illinois - Urbana, Champaign			2,000	2,000	2,000	2,000					
2005	Ableman	Genna	Harvard University			1,000	1,000	1,000	1,000					
2005	Ash	Lesley	University of Arizona			2,000	2,000	2,000	2,000					
2005	Barsky	Maya	Brown University			1,000	1,000	1,000	1,000					
2005	Burger	Megan	Rice University			2,000	2,000	2,000	2,000					
2005	Cross	Jonathan	Duke University				2,000	2,000	2,000	2,000				
2005	Daly	Ronald Terik	Brigham Young University					2,000	2,000	2,000	2,000			
2005	Denduluri	Aditya Krishna	MIT			2,000	2,000	2,000	2,000					
2005	Hagen	John Thomas	Cedarville University				2,000	2,000	2,000	2,000				
2005	MacGregor	Meredith Ann	Harvard University					2,000	2,000	2,000	2,000			
2005	Minchert, III	Robert	West Virginia University				2,000	2,000	2,000	2,000				
2005	Mirchandani	Srishti Deepak	Washington University				2,000	2,000	2,000	2,000				
2005	Moore, IV	John Pease	University of Florida				2,000	2,000	2,000	2,000				
2005	Mousa	Sarah	Princeton University				2,000	2,000	2,000	2,000				
2005	Nixon	Farre	MIT				2,000	2,000	2,000	2,000				

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Award Year	Last Name	First	College	due 2003	due 2004	due 2005	due 2006	due 2007	due 2008	due 2009	due 2010	due 2011	due 2012	due 2013
2005	Ramanlal	Nimish	MIT				2,000	2,000	2,000	2,000				
2005	Segal	Michael	Harvard University			2,666	2,666	2,666						
2005	Sidman	Adam	Harvard University				2,000	2,000	2,000	2,000				
2006	Bionta	Mina	Stanford University				2,000	2,000	2,000	2,000				
2006	Blumenthall	Daniel	Northwestern University					4,000	2,000	2,000				
2006	Brenner	Nicole	SUNY-Stony Brook				2,000	2,000	2,000	2,000				
2006	Brinkopf	Mary	Boston College					2,000	2,000	2,000	2,000			
2006	Fenska	Kristen	Northeastern University				2,000	2,000	2,000	2,000				
2006	Fischell	Erin	Cornell University				2,000	2,000	2,000	2,000				
2006	Ginsbach	Michael	North Dakota University				2,000	2,000	2,000	2,000				
2006	Harrison	Brett	Harvard University				2,000	2,000	2,000	2,000				
2006	Holz	David	Harriet L Wilkes Honors College, Florida Atlantic				2,000	2,000	2,000	2,000				
2006	Hope	Elyse	Stanford University				2,000	2,000	2,000	2,000				
2006	Horton	Douglas	Colorado College					2,000	2,000	2,000	2,000			
2006	Niedbalski	Sara	University of Notre Dame					2,000	2,000	2,000	2,000			
2006	Polepeddi	Lalith	Northwestern University				1,000	1,000	1,000	1,000				
2006	Polmear	Michael	University of Colorado-Boulder				1,000	1,000	1,000	1,000				
2006	Schwank	Benjamin	Harvard University				2,000	2,000	2,000	2,000				
2006	Solomon	Justin	Stanford University				2,000	2,000	2,000	2,000				
2006	Wilson	Allison	Iowa State University				2,000	2,000	2,000	2,000				
2006	Yan	Winston	Harvard University				2,000	2,000	2,000	2,000				
2006	Zelnio	Holly	Wright State University				2,000	2,000	2,000	2,000				
2007	Baskaran	Shruthi							2,000	2,000	2,000	2,000		
2007	Bick	Emily								2,000	2,000	2,000	2,000	
2007	Carvell	Melissa								2,000	2,000	2,000	2,000	
2007	Cronkite-Ratcliff	Bryce												
2007	Crook	Alexandra	University of Utah					2,000	2,000	2,000	2,000	2,000	2,000	
2007	Delgado	Eric							2,000	2,000	2,000	2,000		

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Award Year	Last Name	First	College	due 2003	due 2004	due 2005	due 2006	due 2007	due 2008	due 2009	due 2010	due 2011	due 2012	due 2013
IS	Nagarkatti	Nisha	Harvard University	2,000	0	0								
IS	Parker	Adam	Case Western Reserve University	2,000	0	0								
IS	Reynolds	Patrick	University of Arkansas	2,000	0	0								
IS	Schamel	Jay	University of Alaska Fairbanks	2,000	2,000	0								
IS	Shapiro	Joshua	College of William & Mary	2,000	0	0								
IS	Steinkruger	Corita	Nebraska Wesleyan	2,000										
IS	Wiersma	Helen	University of the South	2,000	0	0								
IS	Young	Christen	Stanford University	2,000										
Totals				100,000	110,000	95,683	134,649	132,666	116,000	104,000	52,000	26,000	14,000	2,000