Research in the UA System

Presented to the University of Alaska Board of Regents

Academic and Student Affairs Committee

December, 2012

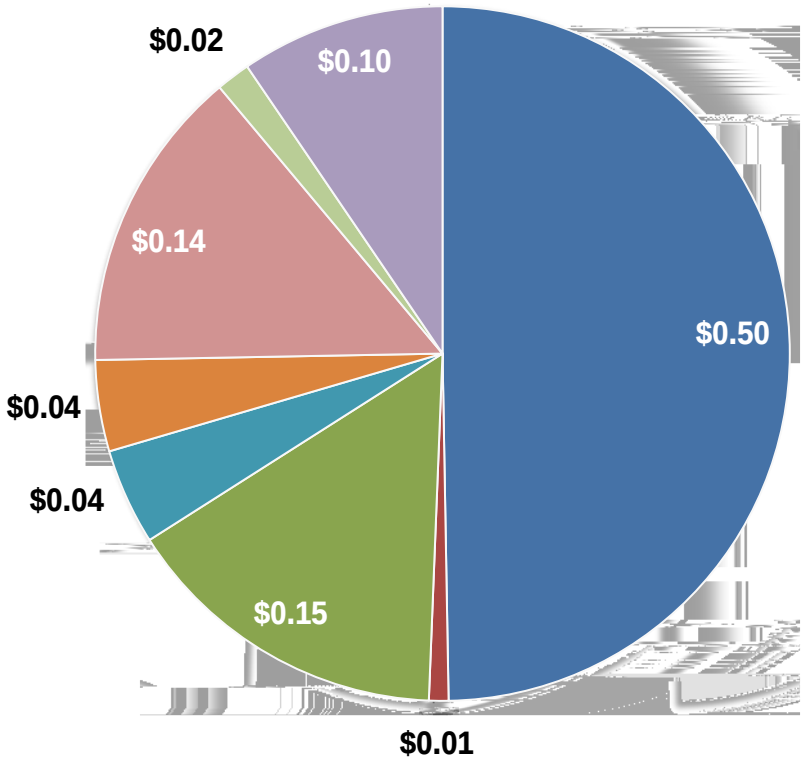
Prepared by Ian Olson, Director of UAF Planning and Institutional Research, PAIR staff members Laura Delisle and Heike Merkel, Director of UAF Undergraduate Research and Scholarly Activity Barbara Taylor, UAS Dean of the School of Arts and Sciences and Vice Provost for Research and Creative Expression Dr. Marsha Sousa, UAA Vice Provost for Research and Graduate Studies Dr. Helena Wisniewski , and UAF Provost Dr. Susan Henrichs.

Strategic Directions in Research

Research is central to the SDI theme "Research and Development to Sustain Alaska's Economic Growth and Enhance Communities." As described in the **Intellectual Property and Commercialization** section of

UAA likewise secures its federal research funding from many agencies. In FY12, DHHS (including NIH)

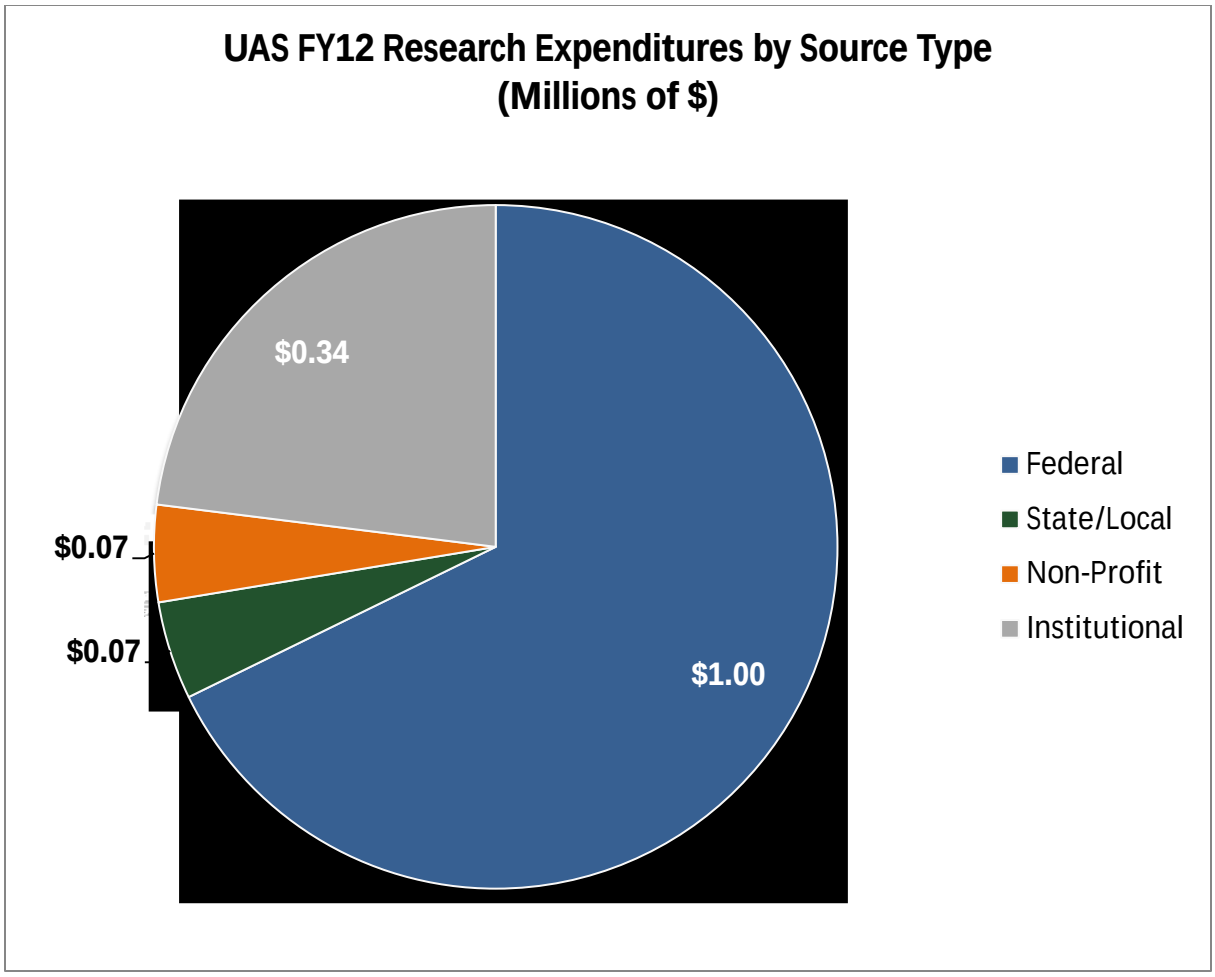
UAS FY12 Federal Research Expenditures by Source



UAS secured about $1M in federally sponsored research, and half of that was from NSF. The UA research expenditures report was prepared by the method used for the NSF Higher Education Research and Development Survey. *Information provided by UA Information Systems, Banner Extracts 2012.*

UAF research is supported predominantly by federal funds and by UA unrestricted funds. The State of Alaska provides about 10% of UAF's restricted research funding. The UA research expenditures report

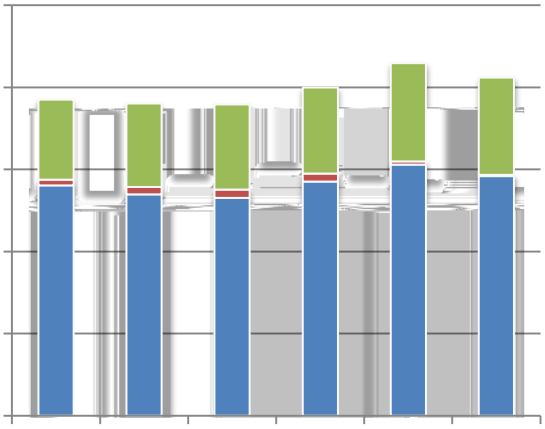
UAA research is supported predominantly by federal funds and by UA unrestricted funds. The State of Alaska provides about 20% of UAA's restricted research funding. The UA research expenditures report was prepared by the method used for the NSF Higher Education Research and Development Survey.
Information provided by UA Information Systems, Banner Extracts 2012.



UAS research is supported almost entirely by federal funds and by UA unrestricted funds. The UA research expenditures report was prepared by the method used for the NSF Higher Education Research and Development Survey. *Information provided by UA Information Systems, Banner Extracts 2012.*

Table 1.

Trends in Research Expenditures



UAF's sponsored research expenditures grew by $13.8M from FY09 to FY11. Due to the loss of $7M in DoD funding for the Arctic Region Supercomputing Center, sponsored research was down by $6.7M in FY12 compared with FY11. Unrestricted funds are UAF General Fund. *Information provided by UA Information Systems, Banner Extracts 2012.*

UAA's sponsored research expenditures grew by $5.6 M from FY09 to FY12. The College of Arts and Sciences is responsible for more than $8M of the FY12 total and the College of Health, nearly $3M. Unrestricted funds are UAA General Fund. *Information provided by UA Information Systems, Banner Extracts 2012.*

UAS' sponsored research total is small enough so that just one or two grants can cause a large relative change in research expenditures. Unrestricted funds are UAS General Fund. *Information provided by UA Information Systems, Banner Extracts 2012.*

Research Funding Impacts

The information in this section is taken from the report "University of Alaska Research: An Economic Enterprise", by Scott Goldsmith, Professor of Economics, Institute of Social and Economic Research (ISER), University of Alaska Anchorage, which was published in March 2007. He discusses the term research multiplier, defined as the ratio of total research dollars to internal (institutional) university funding. Nationally the multiplier is between 5 and 6. As reported in UA in Review 2012 (Fig. 49, based on FY 11 figures), the NGF:GF (non General Fund to General Fund) ratio is 5.5 for UAF, 2.4 for UAA, and 13.1 for UAS, which limits its General Fund expenditures on research. These ratios differ somewhat from what the "Research Expenditures by Source Type" graphs would indicate, because the multiplier calculation does not include some institutional contributions such as under-recovered indirect cost recovery.

Goldsmith (2007) points out that most of the research expenditures, totaling close to $190 million in FY12 including the institutional funding of research, are salary and wages for faculty and staff. Those individuals, in turn, spend a large portion of this money on goods, services, and housing in their home communities. The impac

Students and Research

Graduate Students

UAF has achieved a doubling of the number of Ph.D. degrees awarded annually since 2006. Three of the Ph.D.s awarded in FY12 and one of those awarded in FY11 were

There are two broad categories of Master's degrees: research Master's (such as the MA, MS and MFA), for which research and a thesis are usually required, and professional Master's (such as the MBA and MEd), which usually require a project or capstone course rather than a thesis. UAF awards mainly research Master's, while UAA awards mainly professional Master's, although each of these institutions awards a substantial number of both types of degrees. UAS awards only professional Master's degrees, and is quite productive in those degrees per capita faculty. For simplicity all MA, MS, and MFA degrees were classified as "thesis", although a small minority require only a project. Similarly, all MEd degrees

Data are drawn from the Fall Semester Opening Enrollment Summary published by UA

Undergraduate Students

Research Productivity and Quality

Method

The following graphs present some information on research productivity and quality. The data used to produce these graphs were taken from the following sources: tenured and tenure track faculty numbers in FY10 from IPEDS (http://nces.ed.gov/ipeds/); research expenditures in FY10 from NSF Higher Education Research and Development Survey results (http://www.nsf.gov/statistics/nsf12330/); and publication and citation information from the (description at http://wokinfo.com/). The method of the peer comparisons for publications and citations was to use the advanced search function and search for all types of publications in both the Science Citation Index and the Social Sciences Citation Index for the period ember 31, 2011. Publications for each institution were found by searching OG=[Institution Name[1]] and (if needed) CI=[City[2]] or AD=[Address[3]]. A citation report (for 1, 2006-present) was then generated for each institution based on its publication list. The method for comparison of UAF to leading western research universities was the same, except publications were searched for only one year, calendar year 2011, because of the very large number of publications for some of these institu 1, 2011 to present for this comparison.

The peers used for each institution (Tables 2.-4.) were from the list of peer institutions posted at http://www.alaska.edu/swbir/ir/PeerUpdate_2012.pdf. UAF has designated research peers and those were used with the addition of two 14d o01(122 yi5(a)-9kl2(tdTa2(tdr)ht)2(t0-k m39d2t)322l5(a)-9 22c)623(.-k.0s]tustm

Table 4. UAS Peers	
U Alaska Southeast Peers	**FY10 Sponsored Research in Million $**
U Alaska Southeast	$1.5
Adams State College	- ***
Bemidji State	-
Eastern Oregon U (La Grande)	-
Georgia Southwestern State U	-
Lewis-Clark State College	-
Longwood U	$0.1
SUNY College at Purchase	-
U Texas Permian Basin	$1.3
U Maine Machias	-
U Maine Presque Isle	-
Western Oregon U	$2.0

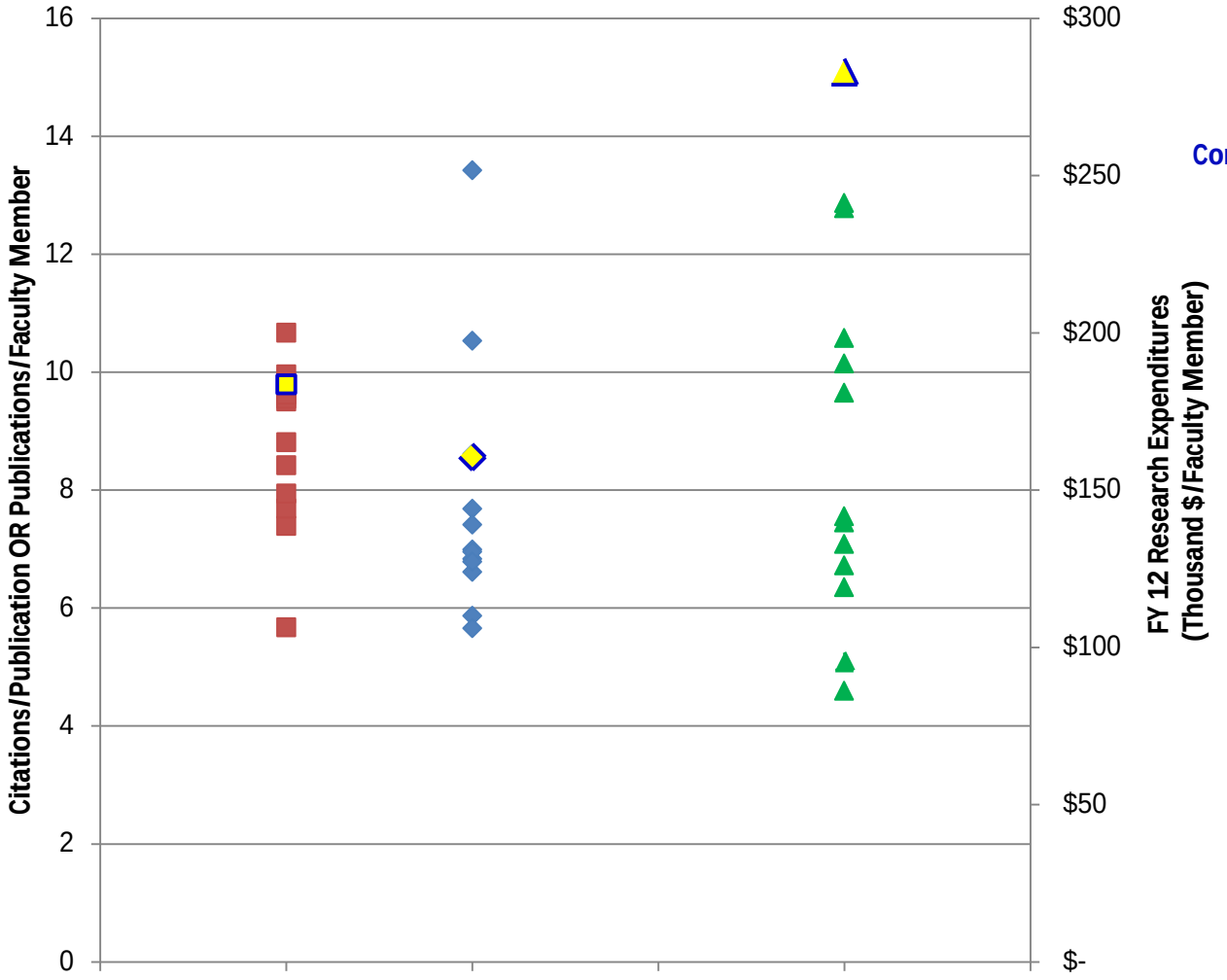
***None reported

Table 5. Leading Western Research Universities		
Institution Type	**University**	**FY10 Sponsored Research in Million $**
LG, RUVH	Oregon State	$193
RUVH*	Stanford U	$760
LG, RUVH*	U Arizona	$410
RUVH	UC Berkeley	$832
RUVH*	UC San Diego	$832
RUVH	U Oregon	$83
RUVH*	U Washington	$979
LG, RUVH	Washington State	$192

*Has medical school

standard measure of research productivity. Because institutions vary greatly in size and this impacts the dollars and publications, these measures have been divided by the number of tenured and tenure track faculty. Although tenured and tenure track faculty number is not perfect for this purpose, the number is readily available for all of the peers. The number of tenure line faculty is a proxy for institution size, and using that ratio is not meant to imply that only those faculty do research, nor that all of those faculty do research. That is particularly true in the case of UAA, UAF, and UAS, where some faculty (extension and most UAFT faculty) have no research workload.

The Web of Science search yields predominantly peer-reviewed journal articles in the sciences, social sciences, and engineering. Although of the other types of publications, such as chapters in books, books, or abstracts in conference proceedings, are found, coverage is spotty. For example, the search



UAF

Compared with Peers. Td[()-7(T)-91.04 0 0 111.04 -11.

UAF's performance is shown as a yellow symbol. The research peers used in this chart are listed in Table 2., above. This chart is based on publications from a six-year period

UAF compiled information on Creative Performances and Exhibitions for its Fall, 2011 Accreditation Self-Study, submitted to the Northwest Commission on Colleges and Universities. These figures include faculty in art, English (poetry readings), film, journalism (documentary film and photography), music, and theatre (Table 9.)

Table 9. Creative Performances and Exhibitions per FTE Faculty 2007-2009 (calendar years)

	2007	**2008**	**2009**
Total Performances and Exhibitions	103	85	85
FTE Faculty	36	36	36

UAS

UAS offers the BA in Art, and a BA in English with an emphasis in creative writing. Students participate in theater classes and productions through a cooperative agreement with the Alaska's only professional theater, Perseverance Theater, and private music lessons are offered through arrangements with local instructors, although neither theater nor music degrees are offered. Highlights of some creative activities of the past two years are listed below.

All three art faculty participated in local, statewide, and national exhibitions and workshops.
One faculty member published book of poetry.
One faculty member published the first children's book in both Tlingit and English.
One faculty member produced a play in bo
Humanities Forum.

Bonnilyn Parker won national awards for ceramics in both her junior and senior years.
Ishmael Hope produced a play, Naatsilanei, in the Tlingit language at Perseverance Theater .

.

Students produce weekly UAS radio show on public radio.
Students organize community poetry slams regularly.
Alaskapella, a student-organized and student-lead vocal group, performs widely.
Six of the 21 URECA grants awarded were in creative activities.

Tidal Echoes, a regional literary journal, is produced by UAS faculty and students.
The Art of Place, a series of demonstrations and discussions focusing on arts and culture of the Tlingit people, was developed by faculty member Ernestine Hayes and has run each spring for the past two years.
Perseverance Theater teaches theater classes and produces plays on campus.
UAS hosts Perseverance Theater's STAR theater performance camp for youth each summer.
Artist in residence, Dr. Alexander Tutunov of Southern Oregon University, taught master classes in classical piano.
UAS co- .
anities Council to produce Community Arts Day on campus.

Intellectual Property and Commercialization

UAA

The Office of Research and Graduate Studies (ORGS) recently created an agile business infrastructure (see figure below) to commercialize technology based on faculty and student research. ORGS obtained This infrastructure includes the Seawolf Venture Fund, LP, a for profit private equity fund, to provide early stage investment in technology companies created from advanced research, emanating from UAA's patent portfolio of innovative technologies and the

UAF

The UAF Office of Intellectual Property and Commercialization (OIPC) protects inventions created by faculty, staff, and students. To begin OIPC's first full year of operation during Fiscal Year 2012, OIPC implemented a strong inventor engagement strategy. As a result, UAF inventors disclosed 32 new inventions to the office, a four-fold increase over previous years on record.

OIPC strives to create an environment conducive to the creation and protection of intellectual property. OIPC assists with the execution of a variety of intellectual property agreements in order to grow the amount of university-owned intellectual assets. In Fiscal year 2012, OIPC reviewed 48 contracts and proposals for intellectual property language. Further, OIPC executed 19 non-disclosure agreements, one collaborative research agreement, and one material transfer agreement. OIPC filed three provisional patents and prepared three provisional patents in that year.

OIPC markets UAF inventions, and licenses these inventions to businesses. In its first full year of

cuts in federal spending will have a significant negative impact. The Association of Public and Land Grant Universities (APLU) has assessed the total impact of Sequestration (as it is currently designed) on university research funding (http://www.scienceworksforus.org/). For Alaska the projected funding loss in the first year is $8.3M, nearly all of which would fall on the University of Alaska.

At present it is impossible to accurately predict how much or when research funding will be cut by specific agencies, and whether the across-the board Sequestration will be implemented or more targeted cuts will be enacted by Congress. Further, the funding cut taken by an agency is only part of the story; some agencies may cut grants more in order to preserve their own core programs. So, only a broad outline of mitigating strategies can be provided.

Monitor funding changes to agencies and specific programs within agencies. Provide advice to researchers on where the best opportunities may exist, recognizing that researchers are specialized and cannot dramatically change their lines of inquiry.

Foster interdisciplinary research, as that is a focus of major federal programs.

Submit the best proposals possible. Provide PIs with assistance to improve proposals, especially for large, multi-investigator proposals.

Partner with other universities 0 1 Tf-270.228 li ares