

*Drumbeats—Haaghezetolno’  
We Will Live Well*

A Six-Year Summary Evaluation of the Higher Education Project  
Sponsored by the U. S. Department of Agriculture at the  
University of Alaska Fairbanks

Prepared by: Madden Associates  
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*Drumbeats—Haaghezetolno’ We Will Live Well* funds a consortium of five rural, Alaska Native-serving extended campuses of the College of Rural and Community Development (CRCDD) of the University of Alaska Fairbanks. *Drumbeats* is funded under the Alaska Native-Serving and Native Hawaiian-Serving Institutions Education Competitive Grants Program (ANNH) of the U.S. Department of Agriculture.

The project was initiated in September 2005 and concluded its sixth year of funding in August, 2011. The Consortium requested a summary evaluation that would examine the institutional changes that have been accomplished during this funding period. A companion evaluation effort is underway that will document student and community impacts of project activities. The current project developed out of a prior USDA grant that supported regional assessments and mini-grants to secondary schools. A summary evaluation of that effort was prepared by Dr. Edgar J. Boone in August, 2006.

In examining the progress over the past six years, the evaluator revisited the purposes and priorities of the ANNH grant program, as set forth in the federal Program Solicitation. The legislative purpose of the grant program is "to promote and strengthen the ability of Alaska Native-Serving Institutions and Native Hawaiian-Serving Institutions to carry out education, applied research, and related community development programs". The Solicitation states that grant funds may be used for supporting consortia, attracting and supporting students and facilitating cooperative initiatives between Alaska-Native and Hawaiian Native-serving institutions. *Drumbeats* has addressed each of these purposes over the past six years.

The Solicitation also identifies ten Education Needs Areas that are eligible for grant support. Of these ten, *Drumbeats* has focused on four:

- Curriculum development
- Instruction delivery systems
- Student experiential learning
- Student recruitment and retention

This report will present findings under several broad headings which flow from the purpose and priorities: consortium development, education programs, applied research and community development. The evaluator has been associated with *Drumbeats* since early 2007, attending Consortium meetings and events, reviewing student progress data, visiting the individual campuses and interviewing campus directors, faculty and staff. This report is based on

that experience, as well as data and information from the four prior-year evaluation reports updated by more recent information for the 2010/2011 academic year.

## **1. Consortium Development**

A strong emphasis of *Drumbeats* has been to develop and support a functioning Consortium from the five participating campuses—Bristol Bay, Chukchi, Interior-Aleutians, Kuskokwim and Northwest—with the goal of strengthening the ability of CRCDC overall to deliver effective agricultural science programs in rural Alaska. For the first several years, Cooperative Extension Service (CES) was also a funded member of the Consortium. However, CES has taken a much less active role in the past two years although it has continued to attend Consortium meetings.

The first *Drumbeats* evaluation (August 2007) found that the "there seems to have been considerable tension within the consortium in matters of budget, staffing, certificate approval and project management", and that the Consortium was therefore not functioning as well as intended. Hiring a program manager for the USDA grant was seen by members as a first step in increasing efficiency. In June, 2008, Elisa Bruns came on board to provide project support. Ms. Bruns brought to the Consortium over six years of experience with Alaska Native organizations. In her role as *Drumbeats* program manager, she has provided various services to the Consortium as a whole and to the individual campuses.

A primary task has been to increase communications both among the CRCDC campuses and with the other Alaska Native Serving Institution (ANSI) campuses in Alaska. Since the 2008/09 grant year, teleconferenced meetings have been held monthly (with a few exceptions) with CRCDC USDA campus directors, faculty and Cooperative Extension Service. Generally, at least one person from each campus has attended the teleconferences. Those interviewed over the subsequent years all indicated that the meetings were helpful and served several useful purposes. At each meeting, the program manager reviewed progress toward grant objectives and indicated where additional effort was necessary to keep on target. Most meetings also included a budget report. Finally, the meetings provided a forum where participants could discuss issues of common concern such as the forthcoming USDA grant cycle, distance education, K-12 engagement, partnership possibilities and marketing.

Monthly teleconferences have been supplemented each year by at least one face-to-face meeting for planning and grant proposal development.

To facilitate communication with non-CRCDC ANSI campuses, the program manager set up quarterly teleconferences to which all ANSI campuses were invited. At least one or two of the four other ANSI campuses were represented most of the meetings. In this past academic year, University of Hawaii ANNH grant program directors have also been invited and have been in attendance.

The Consortium approved a common marketing plan and retained a consultant to develop a consistent "brand" for USDA-developed certificates and degrees and to design promotional materials for each program area. It also maintains a website that serves as a common store for

information from and about the USDA grant. The promotional materials have been distributed to villages in each region and have served as the basis for newspaper ads prior to each academic year.

The Consortium also markets the USDA certificates at the Elders and Youth Conference held in conjunction with the annual Alaska Federation of Natives convention in October of each year. Presentations on Consortium programs have been made at a variety of events, including the annual Western Alaska Interdisciplinary Science Conference and the Alaska Forum for the Environment. A presentation is scheduled in September 2011 at the American Association for the Advancement of Science Arctic Division annual conference.

The Consortium has sponsored several CRCD-wide science faculty meetings. According to Bernice M. Joseph, Vice Chancellor for Rural, Community and Native Education and Executive Dean for CRCD and PI for the ANNH grant, these region-wide faculty meetings helped provide a model for the reorganization of the college from campus-based departments to regional-wide divisions.

### *Findings*

Over the past six years, the CRCD Consortium has matured into an effective mechanism for addressing programmatic and resource issues associated with the AHHN grant. Recent grant proposals have been completed and approved in an expeditious manner. Consortium members have been able to look beyond the needs of their individual programs and campuses, as evidenced by the fact that all agreed to devote considerable funds to Northwest Campus for equipment associated with the meat cutting program and that all are contributing to a science lab coordinator position that will serve faculty across the CRCD region.

The recruitment materials, the Website and the posters and presentations have greatly increased the visibility of CRCD USDA in both rural and urban Alaska as well as nationally. The quality of the materials has contributed to the growing professional status with which the Consortium is viewed by outside entities.

Region-wide USDA-supported science faculty meetings and the subsequent academic restructuring strengthens CRCD's ability to provide needed science and science-related instruction throughout rural Alaska.

Attempts to involve other ANSI campuses have been less successful than anticipated although there has been some participation in the quarterly teleconferences. Closer involvement with at least the three UA ANSI campuses—Prince William Sound Community College and the UAS Sitka and Ketchikan campuses—would appear to be desirable, as all campuses face similar issues; in particular, distance delivery of lab science courses, student recruitment and retention of students through certificate or degree completion.

## **2. Education Programs**

Educational programming has been the major focus of *Drumbeats* activity, addressing four of the ten Education Needs Areas of ANNH. Each area is covered in some detail below.

*a. Curriculum Development*

The development of new certificates and degrees directed at place appropriate careers for Alaska Native Students in the agricultural sciences consumed most of the energy and resources of this project for the first three years. The original four certificates—veterinary science, environmental studies, high latitude range management and ethnobotany—grew out of earlier USDA-funded community interest and needs surveys. A horticulture certificate was developed in the second and third years of funding, but transitioned to a UA-wide certificate, supported by other funding sources. Each remaining certificate relates to one of the discipline areas in the food and agricultural sciences listed in the Program Solicitation. A related Associate of Science (AS) degree was also developed, into which the individual certificates were designed to articulate.

For each certificate area, one consortium campus was designated as lead and has been responsible for developing the certificate sequence and courses; shepherding the certificate through the curriculum approval process; and delivering courses. Lead campuses and related USDA disciplines for the certificates are as follows:

Certificate	Lead Campus	USDA Discipline
Veterinary Science (VTS)	Interior-Aleutians (in cooperation with Chukchi)	Veterinary Medicine/Science
Environmental Studies (ENVI)	Bristol Bay	Conservation and Renewable Natural Resources
High Latitude Range Management (HLRM)	Northwest	Animal Sciences (Reindeer and other Ungulates)
Ethno-botany (EBOT)	Kuskokwim	Plant Sciences

Although the certificates do relate to the agricultural sciences, the Consortium in its 2008/09 grant application acknowledged that "agriculture" was not a compatible concept for rural Alaska and that a more culturally-appropriate definition was needed. Therefore, the Consortium adopted a focus on subsistence sciences—those USDA target sciences that assist individuals and communities to better understand and improve food, shelter, fuel, transportation and other material aspects of rural/village life.<sup>1</sup> This definition has allowed Consortium members to develop additional programs, for example, in rural energy and cold climate weatherization.

Although it was originally anticipated that the certificates would be approved in the first year of *Drumbeats* (2005/06), this did not prove to be the case. The first two certificates—veterinary science and high latitude range management—were not approved by the UA Board of Regents (BOR) until September 2007. At that time, the BOR also approved the AS degree. Environmental Studies and Ethnobotany certificates were finally approved by the BOR in September 2009.

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<sup>1</sup> The term "subsistence sciences" is based on the legal definition of "subsistence usage" in Title VII of the Alaska National Interest Lands Conservation Act (ANILCA).

Part of the delay in getting certificates through the system had to do with difficulty in hiring faculty. The first veterinary science faculty did come on board in a timely manner, but the position turned over at the end of the first year and new faculty had to take over in the middle of the review process. The environmental science faculty also was hired early on, but went on extended leave that precluded his continued involvement in securing program approval. The HLRM program only secured full-time faculty in Summer 2007. EBOT full-time faculty came on board in the 2008/09 academic year. Without oversight and continual attention from a fully-committed faculty member, programs tended to become bogged down, particularly in the relatively complex curricular review process at UAF.

Other barriers to program approval were the relative lack of rural experience on the part of the UAF curriculum committees and the subject matter of the certificates. Lack of experience was often accompanied by the belief that rural, extended campuses did not have the resources to deliver rigorous courses. With respect to subject matter, UAF does not have degrees in the certificate discipline areas. Also, many of the proposed courses sought to incorporate local and culturally-appropriate content, often through teacher-developed course materials. Because curriculum review committees did not have faculty representatives with experience in these subject areas, they appeared to have difficulty in evaluating the appropriateness of the proposed course content, sequence and materials.

Despite these difficulties, however, CRCDD did add four certificates and one associate degree to its slate of program offerings. A total of 35 new science-related catalog courses are being delivered and several other courses have been developed and are currently undergoing the approval process. Prior to this time, most CRCDD course work was directed at certificates and degrees that had been developed elsewhere, such as the general associate of arts degree or a certificate in early childhood education. The USDA certificates represent a new chapter in developing and delivering programs based on expressed rural needs and leading to place-based employment. As such, they represent a major step forward. Other programs and degrees have been subsequently developed along similar lines, such as certificates in rural construction and transportation and a bachelor degree in Yupiit language.

The *Drumbeats* certificates have also expanded the science faculty resources available across CRCDD. Six faculty lines are supported totally or in part by USDA funds. Science-related facilities have also increased, with an environmental science lab at the Bristol Bay Campus and the meat process and cutting labs at Northwest Campus. Other campuses have added science equipment. All of these newly-acquired resources together with the fact that most all of the course work is distance-delivered significantly increases rural access to science education.

However, as will be seen in the section on Student Recruitment and Retention, response to the new certificates in terms of enrollment has in many cases not lived up to expectations. As a result, the campuses are considering modifications to better meet the needs of students. Because each certificate is facing different issues, each will be discussed separately.

*Veterinary Science:* The VTS certificate grew out of a perceived need for better animal care in rural Alaska where reliance on traveling veterinarians makes access to treatment

spasmodic at best. The prevalence of sled dogs as well as dogs used for subsistence purposes in villages appeared to indicate a demand for more information and training in vet science. However, rural enrollment in the program has not been as high as expected; in fact, most of the demand for coursework comes from more urban areas of the state.

Several conditions help explain this unanticipated result. First, unlike environmental quality and control, which receive considerable attention from tribal, state and federal governments, animal health and control are not yet issues. As a result, there are no paid positions in rural Alaska for vet technicians. Second, the Alaska veterinary community has not wholly embraced the concept of vet technicians and has not supported the program in the manner that is needed to support internships and eventual employment. Finally, the vet science certificate cannot get American Veterinary Medical Association accreditation, because as a distance program it cannot provide the necessary weekly vet clinical experience. Also, the coursework has its own designator—VTS—and its courses are not considered by UAF to be science courses. As a result, not all vet science coursework will transfer into a bachelor of science or a vet medical degree, except as electives.

Given these challenges, the program is considering several options for the future. The Mat-Su campus at UAA has a vet science certificate that could be AVMA accredited. The program is currently offered only on-site. If the two campuses would collaborate, they could deliver the program statewide, with CRCD providing the distance delivered portion.

Another suggested alternative is to redo the current certificate into an occupational endorsement (OE). An OE is composed of fewer credits than a certificate, focuses on specialized content and does not require additional general education (GERs) for completion. And, in fact, a review of the students in the program reveals that many enrolled students take only the content courses and then drop, having achieved their educational objective.

Yet another suggestion is to link the certificate more closely with the AS degree by establishing a wildlife technician track in that degree. Wildlife technician is a career path in rural Alaska, with employment opportunities in resource management agencies and with articulation to four-year and higher natural resource management degrees.

*High Latitude Range Management:* The HLRM certificate was developed in the beginning to meet the needs of Alaska's reindeer herders, who are centered in the Seward Peninsula. The program later expanded to consider the range management issues of other ungulates. The potential student base for the certificate was always quite small; there are approximately 20 reindeer herders on the Seward Peninsula and neighboring islands. In addition, the 1937 Reindeer Act requires that all Alaskan reindeer be owned by Alaska Natives. Therefore, program planners anticipated having small enrollment, with a target cohort size of eight. Although the program did reach this number in the first year, enrollment dropped off in subsequent years. However, the campus reports eleven students as enrolled in the 2010/11 academic year. A goodly percentage of current herders have taken courses in the program, but as is the case with vet science, many completed only the content courses and did not complete the GERs. For this reason, the campus is considering taking the certificate down to an OE.

As an ancillary to the HLRM certificate, the campus has also developed the capacity for training in meat processing and cutting. The major equipment purchases for *Drumbeats* have been a mobile meat processing plant and a meat cutting van. The campus has developed an OE in meat cutting that meets USDA standards. The endorsement will be available in Spring 2012. The campus is also developing coursework leading to an OE that focuses on using reindeer by-products (hide, horns, etc.) in arts and crafts. The OE would include marketing skills.

*Ethnobotany:* The EBOT certificate was late in gaining BOR approval and in securing full-time faculty, both of which have contributed to low enrollments. In addition, however, the program has attracted interest from unexpected students. The certificate was originally intended to lead to employment in a natural resource management field or as an entrepreneur, developing products based on traditional plant uses. Although some students fitting this profile have taken courses—and one has developed and markets salves and lotions based on traditional plant usages—most of the students are taking the courses for very different reasons. For example, one student is an elementary teacher who is using the information in her classroom. Other students are enrolled in the Yupiit Language bachelor degree and are taking the ethnobotany courses as electives. Still others would like to use the information as an emphasis area in a master's or even a doctoral degree.

This diversity of student objectives is causing the campus to rethink the certificate program as it is currently constituted. Using other funding sources, the campus will develop upper division ethnobotany courses that could be used as electives in four-year and higher degrees and could evolve into an ethnobotany minor. Because many of the courses are offered by distance, the minor could be accessed and used throughout the UA system.

*Environmental Studies:* Of the four certificates, ENVI has had the most robust enrollment since the beginning of *Drumbeats*. Even though the certificate did not receive BOR approval until Fall 2009, students were already taking the coursework as special topics courses. A major draw for the program has been the availability of local paid employment, particularly in water quality monitoring. The certificate continues to attract students and currently has the highest number of program students; 16 or 37 percent of enrolled students in the 2010/11 academic year.

As a response to local needs, the campus is also developing an OE in Sustainable Energy and has added an additional faculty to conduct this program. Courses in home weatherization and sustainable energy have been offered as special topics courses to high enrollments.

The campus is considering revitalizing the Renewable Resources AAS degree that is currently on the books but not active. The degree would have two tracks: environmental monitoring and sustainable energy.

*Associate of Science Degree:* The AS degree was developed primarily to provide an educational pathway from the certificates through an associate and on to a bachelor degree. Although enrollment figures for the degree have not been obtainable, the evaluator was able to secure graduation information. Of the 21 graduates to date from USDA-developed programs,

more than half (12) have been with the AS degree. However, as with the certificates, the student population for the degree has been somewhat different than anticipated. To date, most of the graduates have used the degree as an opportunity to package previously-earned credits, often from several universities. Although it serves a purpose in assisting students to degree completion, it has not yet become a significant pathway from the certificates to a higher degree.

One of the problems with the AS is that there are few 200 level science courses offered by distance. As mentioned in the discussions of the individual certificates, the new courses all have a unique designation—VTS, ENVI, EBOT, HLRM—that is not recognized by the UA system as a science course. Therefore, the 200 level certificate courses cannot be used to meet the 200 level science course requirements of the AS degree, or to meet GER science requirements in any other degree. Given the UA science faculty reluctance to approve lab science distance courses even at the 100 level, securing sufficient 200-level science coursework to support the AS degree may be extremely difficult.

### *Findings*

ANNH funding has allowed CRCD campuses to significantly increase the science and science-related offerings available to rural Alaskans. All certificates articulate into the AS degree and were intended to lead to local employment opportunities.

The experience of shepherding these new programs through the UAF curriculum approval process stretched both CRCD faculty and their Fairbanks peers—sometimes almost to the breaking point. As a result, however, CRCD faculty increased the rigor of their courses and Fairbanks faculty gained a better understanding of conditions and needs in rural Alaska. In fact, one Fairbanks faculty interviewee indicated a degree of envy at the ability of CRCD campuses to be so responsive to student and community needs. The USDA experience eased the way for other new certificates and degrees proposed by CRCD campuses, for example, the Yupiit language bachelor degree at Kuskokwim.

However, the student response to the certificates has been less than anticipated. Although almost all of the newly-created courses had strong enrollments when they were first offered, not many students have persisted to completion. A major trend has been for students to drop out once they have completed the content courses, either because the content was all they were interested in or because they could not pass the GERs. While this latter reason can be addressed through developmental courses, it is likely that a certificate was not the goal in the first place for many of these students.

For this reason, the move to OEs seems to be warranted. The OE will allow the student to gain the content knowledge, complete a course sequence and to receive some recognition. The downside is that OEs do not carry the same weight in student metrics as do certificates. Thus, while OEs can contribute to head count and student credit hour statistics for the campuses, they will not appear in graduation statistics.

Other means of increasing access and/or interest in certificate courses—such as pairing with another UA campus for vet science, adding a meat processing curriculum in HLRM,

developing a sustainable energy track in environmental studies or moving to upper division courses in ethnobotany—are all worthy of additional effort. More coordination with other ANSI campuses in sharing programs could also increase enrollment, since most of the certificate courses are offered by distance. CRCD students might also benefit from the fisheries and marine science courses offered by the University of Southeast (UAS) campuses at Ketchikan and Sitka.

Unless a solution can be found to the issue of 200-level distance lab courses, the utility of the AS degree as a pathway for rural student is severely compromised. Additional work with UA science faculty both to extend science distance offerings and to have certificate course designations recognized as science is sorely needed. Again, closer collaboration with the other ANSI campuses could be beneficial as they face similar problems.

#### *b. Instructional Delivery Systems*

As indicated above, much of the certificate coursework is delivered by distance. Heavy use is also made of intensive sessions—as the lab portion of a lab science course and as summer field studies. This combination of distance delivery plus intensives is relatively new in the UA system, particularly for science courses. Student travel and tuition for these intensives have been a major student support expenditure for ANNH grant funds.

The CRCD experience helped spur a UAF-wide meeting of science faculty to discuss the issue of delivering meaningful lab experiences in a distance science program. The CRCD model has helped main campus faculty to recognize that this can be done successfully, at least for 100-level courses. However, as discussed previously, science faculty as a whole are still not convinced that higher-level science courses can be distance delivered.

In order to strengthen the lab experiences for their courses, the *Drumbeats* campus directors are jointly funding a lab manager position starting in the 2011/12 academic year. The position will provide support to regional science faculty by seeking out and securing resources and materials, developing lab modules and providing logistical support to intensives. This support may help alleviate some of the on-campus faculty concern about the necessary rigor in 200-level lab experiences.

#### *Findings*

CRCD certificate science courses are successfully modeling a blended delivery system which incorporates intensive lab/field experiences with distance-delivered content. However, such courses are quite expensive in terms of student travel, lodging and time away from the home community and will never be self-supporting. System wide approaches to distance lab science must be developed that are sustainable without grant support.

#### *c. Student Experiential Learning*

The lab intensives are one method by which CRCD certificates are increasing experiential knowledge for students. ENVI, EBOT and HLRM programs also require at least one field course for certificate completion. The VET program requires a semester internship

experience. ENVI also places interns in local natural resource management agencies.

The OEs that have been developed or are under development in meat cutting, sustainable energy and reindeer arts and crafts contain considerable hands-on instruction.

EBOT has developed a student-exchange agreement with the Plant Biotechnology certificate program at Windward Community College of the University of Hawaii. This exchange provides additional experiential learning opportunities through the native plant botanical garden at that campus. The Kuskokwim campus is planning on establishing a similar a botanical garden and herbarium in Bethel, which will add experiential learning resources to both students and the community.

### *Findings*

The CRCDC certificate programs have greatly expanded student experiential learning opportunities in the subsistence sciences. Because learning-by-doing is an instructional method that is compatible with cultural values and tradition in much of rural Alaska, this aspect of the certificate programs should be highlighted in recruitment materials.

#### *d. Student recruitment and retention*

Although the certificate development process in itself has had significant impact on CRCDC as a college by increasing the visibility of rural higher education to the larger UAF system, expanding science education resources, and fostering closer working relationships between CRCDC campus administrators and faculty, the main goal, of course, was to serve students. As alluded to several times in the earlier discussion, *Drumbeats* success in meeting this goal has been mixed.

As the statistics in Table 1 indicate, enrollments have been relatively high in the individual courses. The first certificate courses for which enrollments are available date from the 2006/07 academic year. For the first two years, campuses reported duplicated counts of students—that is, a student taking more than one course was counted for each course. In the 2008/09 academic year, after the hiring of the program manager, unduplicated counts were collected.

Table 1: Total Course Enrollments

Academic Year	Students
2006/07	314 (duplicated count)
2007/08	501 (duplicated count)
2008/09	97 (unduplicated count)
2009/10	172 (unduplicated count)
2010/11	219 (unduplicated count)

However, converting the casual student into a program student has proven difficult and retaining these students to certificate completion more difficult still, as evidenced by the

following data. Students could formally enroll in VTS and HLRM in Fall 2007, after the certificate received BOR approval. ENVI and EBOT students could not formally enroll until Fall 2009. However, both programs had students who were taking courses and who indicated a desire to enroll once the certificate was approved. These numbers are reported for the two certificates in the 2008/09 column.

Table 2: Program Enrollment and Completion

Program	2007/08	2008/09	2009/10	2010/11	Total graduates
VTS	18	10	16	6	4
HLRM	10	7	6	11	1
ENVI	0	16	21	16	4
EBOT	0	3	3	10	0
AS	0	3	5	5	13

The Consortium is addressing the issue of low enrollments into the certificate programs with several measures. First, the Consortium is supporting a CRCD-wide, coordinated recruitment effort through its promotional materials and presentations, newspaper ads and, starting this fall, radio ads in rural Alaska. To beef up enrollment in the VTS program, I-A and Chukchi campuses are jointly funding a recruiter, who is traveling the villages in the region together with an Alaska Native Elder to promote the program. Although primarily focused on VTS, the recruiter also distributes information on the other ANNH certificate programs. A new HLRM program manager—who is the first graduate of the program—has been hired by the Northwest campus to focus on both recruitment and retention.

Campuses are also engaging in outreach to K-12 to develop a pipeline of students. ENVI and HLRM both offer dual credit for high school students in some of the certificate courses. HLRM's meat cutting courses in villages are attracting young, male high school students, some of whom have expressed interest in additional coursework. Both the Bristol Bay and the Kuskokwim campuses support or have supported summer camps for K-12 students built around science education. In the last grant cycle, CES extension agents in campus communities have provided assistance with outreach activities.

For several of the past evaluations, the evaluator was able to look at student success and persistence numbers. However, concerns about FERPA and confidentiality have precluded that kind of analysis for this evaluation. Earlier data on success rates (completing a course with a C or better) indicated that students generally were passing the certificate content courses, but many had yet to attempt the communications, writing and computational GER courses that were required to complete the certificate. Those who have graduated to date most often already had an associate or higher degree and were able to apply previously-completed GERs to the certificate.

The certificate students who did not have a prior degree and who were attempting the GERs often failed the course or took an incomplete. This is not too surprising, as there are few traditional-aged students enrolled in the programs. Most students are persons who are entering or returning to postsecondary education after a pause in their educational careers often of many

years. In some cases, returning students are finding the math and English requirements of the certificates and degrees difficult to complete successfully.

### *Findings*

Recruiting and then retaining program students continues to be an issue for the ANNH certificates. The enhanced recruitment efforts described above may help attract more rural students. However, the persistence and success data from prior evaluations, as well as the program enrollment and graduation data for the past four years indicate that increased recruitment alone is not an adequate measure of success.

Given both the relative low completion rate and the academic history of most of the students who do persist to completion, it would appear that the GER requirements of the certificates are a major stumbling block. Either students enroll in the program only for the content information or they are unable to pass the GERs. In either case, they drop out. Although such students may have achieved their educational objective, they appear in the university student data system (and perhaps to themselves and others) as non-completers. Moving certificate content to an occupational endorsement would allow the student to receive recognition of achievement. However, he/she will not count in the graduation statistics for the campus. As the UA system as a whole becomes more concerned with education for employment, this issue may be addressed.

### **3. Applied Research**

While the main thrust of ANNH funding has been to build the capacity of CRCD to develop and deliver subsistence sciences educational programs to rural Alaskans, it has also helped advance applied research in the region. Efforts in this area might best be categorized as "community science" rather than strict applied research, as most efforts combine traditional community knowledge with Western scientific methods.

The bi-lingual Ethnobotany Field Guide developed by the EBOT program is a good example. An advisory council of Alaska Native Elders provided the content for the guide which includes traditional names and usages with other scientific data. The proposed botanical garden and herbarium will provide additional opportunities for community science.

Through the Alaska Reindeer Association annual meetings, the HLRM program has brought herders and UA researchers together to share data and information and to jointly plan research topics. The new meat cutting and processing labs posed a challenge in cold weather winterization, resulting in new knowledge in that area.

The ENVI program has hosted several regional environmental conferences that have helped improve environmental literacy in the Bristol Bay region. Tribal members trained in water quality monitoring through certificate courses apply their skills to gathering data and information for the regional Native association and the U.S. Fish and Wildlife Service.

VTS students complete a research project that involves applying scientific observational and analytical skills to a local animal health problem.

The field courses that are a part of most of the programs stress observational, analytical and reporting skills that expand the scientific "tool kit" available to the communities. The incorporation of Traditional Ecological Knowledge (TEK) into the individual certificates has increased the recognition by both UA faculty researchers and community members of the value of TEK as applied science.

All of the campuses participate in the Western Alaska Interdisciplinary Science Conference (WAISC), which has been co-hosted by *Drumbeats* for the past four years. The conference brings together students, UA and other researchers and community members for a multi-day event that covers a variety of topics, from the potential impact of mining on subsistence resources to bed bugs in rural Alaska. The first conference in Dillingham in 2008 had 183 participants. The most recent conference in Spring 2011 in Bethel had 110. Community members actively participate in the conference both as presenters as responders.

### *Findings*

The applied research activities of *Drumbeats* are by and large an outgrowth of the main educational program development focus, rather than an end in themselves. However, these activities are not only increasing the observational and analytical skills of students but are also assisting community members in seeing science in much broader terms, including TEK.

## **4. Community Development**

*Drumbeats* certificates are designed to lead to place-based employment, including entrepreneurial activity, thus adding to the economic base of the community. However, some of the programs also engage in more direct community development activities.

The HLRM meat processing and cutting program are expanding markets by allowing reindeer herders to market products that meet USDA standards. While most commercially-sold reindeer meat in the past was used as sausage, the processing plant will turn out higher value cuts of meat that can be sold regionally, nationally and even internationally. To assist in marketing efforts, the Northwest Campus partnered with Kapiolani Community College of the University of Hawaii system to develop a cookbook of high-end reindeer meat recipes. The HLRM program is also developing an operations and maintenance manual for the processing and cutting facilities that will allow the herders to operate the equipment on their own. Because the facilities are mobile, they can be shared with other regions in CRCDD and can be used to process other animals.

The proposed arts and crafts OE at Northwest campus provides another economic development opportunity, as participants learn not only how reindeer by-products can be made into saleable art and craft pieces, but also how to market the items.

The water quality technicians that have been trained in the ENVI program contribute to the Bristol Bay region by providing benchmark data that can be used to measure the results of development efforts in the region. The new sustainable energy OE has significant community development potential as it addresses one of the most critical challenges facing rural Alaskan villages—the high and unsustainable costs of village energy systems that are based on oil.

The EBOT program has already produced one local entrepreneur, who is marketing products based on traditional plant usage. As the program develops, additional products may be developed and marketed.

Some VTS students are using the knowledge gained in their courses to raise domestic food animals, increasing the locally-available food supply. A new (Summer 2011) activity for the I-A campus that hosts the VTS program is community gardening. The pilot garden in Fort Yukon which is run in conjunction with the local Head Start will provide a demonstration of the feasibility of vegetable production, again increasing local food sources.

In cooperation with CES, the campuses conducted a series of community dialogs in the 2008/09 grant cycle. These dialogs engaged community members with campus administrators and faculty in discussion of additional areas in which university resources could be directed at community development needs. The attention to sustainable energy is one outcome of these conversations.

### *Findings*

The community development aspects of *Drumbeats* activities are having considerable impact on their communities, by providing facilities and skill-based instruction that contributes to the economic well being of communities. The emphasis on subsistence sciences and the incorporation of TEK also strengthens the social fabric of communities by honoring local knowledge and assisting in the preservation of traditional ways of learning and living.

### **Summary**

The past six years of *Drumbeats* activities have resulted in considerable change within CRCDC and on the individual campuses. As called for in the purpose of the ANNH grant, the college and the campuses have strengthened their ability to carry out education, applied research, and related community development programs.

A major success of the project has been the creation of and support for the *Drumbeats* Consortium, and the related increase in intra-campus resource sharing, coordinated planning and region-wide faculty support. A large part of this success rests on having a full-time program manager who supports the group. Although attempts to add other ANSI campuses to the Consortium have not yet been successful, increased collaboration across the UA system could have significant programmatic benefits.

The education programs developed with *Drumbeats* support are now in full operation. After an extended developmental period during which CRCDC science faculty had to convince

on-campus faculty that extended campuses were capable of delivering rigorous science education, four certificates were approved. All have students enrolled and three of the four have had at least one graduate. The Associate of Science degree that was also developed under *Drumbeats* is proving to be popular and has had 12 graduates as of Spring 2011.

However, after several years of delivery, each campus is now considering adaptations, modifications or additions to the original certificates. The most frequently suggested modification is to package the content coursework into an occupational endorsement, removing the writing, communications and computational general coursework that is required of a Board of Regents certificate. A review of student progress indicates that many students are dropping out after completing the content courses, in effect creating their own OE, but without the benefit of any institutional recognition of completion.

A second modification is to add additional coursework. The ENVI program is adding an OE in sustainable energy and HLRM is creating an OE in meat cutting and potentially in crafts/marketing. EBOT will be developing upper division coursework, using other grant funds, to develop an ethnobotany track that could be used as an emphasis area in the Yupiit language bachelor degree or a master's program.

All programs use a blend of distance-delivered content and intensive on-site labs and/or field experiences. The increase in science courses so delivered has led to an UAF-wide discussion about and examination of distance science education, particularly for courses above the 100 or introductory level. This discussion is of considerable importance to the AS degree, as students currently cannot access sufficient 200-level distance science offerings to complete the degree. The fact that all of the new catalog courses created for the certificates have their own unique designators contributes to the problem, as these courses are not recognized in the UA system as meeting science course requirements for degrees.

*Drumbeats* certificate programs have expanded student experiential learning opportunities both through intensive lab experiences and through the summer field courses. A review of student progress indicates that rural students do well using this method of instruction.

Student recruitment remains an issue. With the exception of environmental studies, all programs have less students than anticipated. The students who have enrolled differ considerably from what was expected. A substantial number have already earned a four-year or higher degree, are non-minority and live in urban areas.

The new VTS recruiter and the HLRM manager should lead to increased enrollments in these programs. However, data indicate that many students who do enroll will not persist to completion either because they are only interested in the content courses or because they cannot pass the GERs. The move to OEs may help this situation. However, OE completion rates are not treated in UA student metrics in the same way as certificate or degree completion. With the rise of OEs system wide, this issue may gain more attention and appropriate metrics may be developed.

The applied research opportunities for both students and community members through *Drumbeats* activities are providing rural residents with a broader view of science. The incorporation of TEK into coursework preserves and affirms the value of traditional knowledge.

*Drumbeats* activities are also contributing to the economic and social well being of communities. All of the certificates were designed to lead to place-based employment in a local or regional agency or as an entrepreneur. Even if the completer does not take paid employment, the skills gained through the certificate program contribute to the social capital of the community.

*Drumbeats* programs contribute in other, more immediate ways. HLRM meat processing facilities and certificates are opening markets for USDA-certified reindeer meat regionally, nationally and even internationally. The UH KCC-developed cookbook assists in this effort. ENVI-trained technicians monitor water quality for the region and provide data to resource management agencies that can be used in making development decisions. Sustainable energy students are addressing the critical energy issues that face all rural villages. One EBOT student has developed and markets her own products, using native plants in traditional ways. Community garden participants and some VTS students are increasing local food supplies.

Based on the evidence available, it appears that *Drumbeats* has had an impact on both CRCD and rural Alaska. It may now be time to look beyond the certificate programs and consider new areas of focus for the ANNH program. The following recommendations are offered to assist CRCD in moving to a next stage of activity. Several of the recommendations echo those arrived at in the November, 2010 strategic planning meeting that are yet to be implemented.

## **Recommendations**

*Recommendation 1:* Continue efforts to collaborate with other ANSI campuses, both to market *Drumbeats* certificate programs and to expand CRCD-region student access to the fisheries, marine biology and other ANNH programs offered by the ANSI campuses.

*Recommendation 2:* Move to modify, expand and/or adapt the existing certificate programs to better respond to student needs. This may mean creating OEs from existing content courses, adding new content or developing upper division courses.

*Recommendation 3:* Address the science education issues identified in this report. CRCD should take the lead in a system wide approach to the issue of distance lab courses, particularly those above the introductory level. The other ANSI campuses can be of assistance in this effort as they have similar needs. Securing recognition of certificate designators as science courses would be a partial solution to the problem.

*Recommendation 4:* Intensify recruitment efforts, particularly those that create a pipeline from K-12 into the certificate programs. Consider purchasing program slots in RAHI and/or developing a CRCD-wide summer Upward Bound program.

*Recommendation 5:* Focus on student retention through the GERS. Even if OEs are developed, a goal—particularly for traditionally-aged students—should be completion of the certificate and the AS degree and beyond. Tutoring, intensified advising, place-appropriate GERS (such as the Bush Physics course), redesigned developmental education courses and other methods to enhance student success should be considered. Again, an ANSI-wide effort could be beneficial.

*Recommendation 6:* Highlight the community development impacts of *Drumbeats* activities. Although student credit hour production and graduation rates are valuable measures of program success, other impacts can also be important. These need to be documented and reported to funding agencies, internal UA administration, rural stakeholders and the general public.

The evaluator has enjoyed her long association with *Drumbeats* and is impressed with the growth and maturation she has observed. It is hoped that the information contained in this report will assist the Consortium in shaping future efforts. The evaluator thanks all of those who contributed to this report.