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Are My Sea Gull Eggs Safe To Eat?

By Lianna Jack, Executive Director, and Dan Martinez, Research Analyst, TASSC.

The Alaska Sea Otter and Steller Sea Lion Commission (TASSC), a non-profit Tribal consortium, received funding from the Environmental Protection Agency (EPA) to test a subsistence food for high priority contaminants. Lianna Jack and Dan Martinez, TASSC, coordinated the project. Donna Willoya, TASSC, provided support throughout the project. Dr. Dolores Garza, UAF Marine Advisory Program and former Chair of ANSC Board of Commissioners, provided overall project oversight and served as Principal Investigator.



Photo by Dolly Garza

TASSC worked with Sitka Tribe of Alaska, Native Village of Mekoryuk, Togiak Traditional Council, Maniilaq Association based in Kotzebue, and the Qawalangin Tribe of Unalaska. Participation from each of the communities was as follows: Jack Lorrigan – Sitka; Larson and Derek King – Mekoryuk; Peter Lockuk, Joe Andrew, and Clara Martin – Togiak; Enoch Sheidt – Kotzebue; and Helen Lekanoff, Chris Price and George Pletnikoff - Unalaska.

Tribal participants raised concern with gull eggs, a common and prized subsistence food throughout coastal Alaska. In Spring 2000, coordinators from each area collected 15 eggs for a total of 75 eggs sampled. The eggs were tested for Level One PBT contaminants (including pesticides, PCBs, dioxins, furans and heavy metals).

Methods

Eggs were collected from sites traditionally used for subsistence in each of the five areas. Three gull species were sampled:

- Glaucous gull (*Larus hyperboreus*): Triangle Island, Nunivak Island (Mekoryuk); Vitskari and Viesoki Rocks (Sitka)
- Glaucous-winged gull (*L. glaucenscens*): Egg Island, mouth of Noatak River (Kotzebue)
- Herring gull (*L. argentatus*): Hog Island (Unalaska); Gull Ship (Togiak)

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The Impact of Global Climate Change in the Arctic

By Larry Merculieff, Contractor, ANSC.

The Alaska Native Science Commission was invited to coordinate a workshop on global climate change at the Alaska Federation of Natives Leadership Forum: Building

Knowledge-Based Economics in Anchorage June 28 and 29 of this year. ANSC Executive Director Patricia Cochran, Dr. Henry Huntington, and Dr. Michael Bradley of the Alaska Native Health Board made presentations as a panel of speakers on the topic of the Impacts of

Global Climate Change in the Arctic. The panel was facilitated by Larry Merculieff. All three panelists were chosen for their acknowledged expertise in working with Alaska Natives in the area of global climate change. Patricia Cochran initiated the dis-

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cussions by outlining the Alaska Native Science Commission documentation of regional meetings with villagers over the past eight years where climate change observations were made. Additionally, all three presenters highlighted the findings of a report entitled **The Arctic Climate Impact Assessment** due in September 2004.

Patricia reported on some of the findings documented from regional meetings, including the following:

- sea ice is thinning, affecting hunter safety and marine mammal productivity
- river ice is thinning, affecting the safety of hunters and those traveling between villages
- beaver are moving farther north, following the tree line movement north, creating possibilities of increased incidences of giardia in drinking water, and affecting fish production
- halibut are migrating farther north, lowering catch levels in more southern areas
- salmon are noted to have more lesions and growths than normally observed, possibly from parasites that thrive in warmer waters
- coastal erosion is beginning to have major impacts on coastal villages because of storm driven waves and intense storms
- subsistence seasons are getting shorter
- sea ice is appearing later and retreating earlier, affecting ocean productivity cycles
- water levels in Alaska lakes are lowering
- permafrost levels are changing
- many species of animals are declining
- there is an increase in forest fires with drought
- cysts are showing up in moose
- weather suitable for hunting is more erratic and more unpredictable, threatening hunting success and safety

Dr. Huntington and Dr. Bradley voiced agreement with Patricia's presentation and further noted that these changes are causing emotional stress, and have social and economic repercussions across the north due to increased dangers and uncertainties affecting harvesting strategies, harvesting successes, and human safety. Dr. Bradley pointed out that one of the most significant physical impacts is from melting permafrost, threatening the structural integrity of everything built on permafrost. Additionally, Dr. Bradley pointed out that global climate change changes exposure to ultraviolet light, possibly resulting in future increases in infectious diseases, particularly those that may be transferred from animal to human.

"salmon are noted to have more lesions and growths than normally observed, possibly from parasites that thrive in warmer waters."

The panelists made several major recommendations:

- Processes must be developed to identify and prioritize a list of communities that are likely to suffer the greatest impacts from climate change
- Future construction planning and design of northern projects (such as water and sewer systems) must take climate change into account
- Funds must be made available to villages to develop coordinated monitoring and reporting of fish, wildlife, and habitat, new diseases, and identification of invasive species
- Research must begin to focus on documenting social, cultural, economic, and nutritional effects of global climate change
- Public education and awareness programs should be launched
- Elders need to be intricately involved in looking at changes and determining strategies to adapt to the changes from global climate change
- Natives across the north need to dialogue and discuss the immediate and likely changes to ways of life and develop partnerships to deal with them



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For each community, aliquots of four randomly selected eggs were combined into a composite sample. Fifteen composite samples, representing 60 eggs, were sent to each laboratory for analysis: Frontier Laboratory for heavy metal analysis, and AXYS for organochlorine pesticides, PCBs, dioxins and dioxin-like compounds. Details on the specific analytes and analytical methods can be found in Jack and Martinez (2003).

Throughout the life of the project, tribal participants were kept apprised of the project stage and progress. Following completion of data analysis and health risk assessment as described below, the data was provided and presented to each of the participating communities. Many forms of outreach and communication were employed, including workshops, posters, community meetings, newsletters and presentations at statewide tribal/environmental conferences.

Analytical Data Results and Discussion

Percent detections were calculated and sums were compiled for PCBs and dioxins. For metals, selenium and mercury were detected in all samples, whereas arsenic, cadmium and lead were detected in only one or few samples. Therefore, only mercury and selenium could be used to compare among all communities. For organochlorines, contaminants were detected in 100-percent of samples tested for toxaphene, hexachlorobenzene, beta-HCH, oxychlordane, cis-chlordane, trans-nonachlor, cis-nonachlor, heptachlor p,p'-DDE, p,p'-DDT. Some organochlorines were not detected in any sample, and these included a-HCH, g-HCH, heptachlor, aldrin, endrin, trans-chlordane, p,p'-DDE, p,p'-DDD, and p,p'-DDT.

Conservative Approach at Health Risk

The contaminant results were analyzed for human health risk with the Agency of Toxic Substances and Disease Registry's (ATSDR) Minimum Risk Level (MRL) screening tool and EPA's Estimated Lifetime Cancer Risk (ELCR) assessment tool.

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MRLs are designed to provide a very conservative measure of health risk and do not represent a cutoff for healthy vs. unhealthy contaminant levels. MRLs have a large margin of safety such that actual contaminant doses could exceed the MRL by a hundredfold or more without causing noticeable health effects (Chou 2003, Kimbrough 1995, Schnell 2000).

TASSC used the chronic exposure MRL, as this mirrors egg consumption patterns over a lifetime to estimate non-cancerous health risk. World Health Organization Toxic Equivalency Factors were used to calculate total TEQ for dioxin and like substances. Total PCBs were calculated by Σ PCB congeners.

Egg Consumption Guidelines (ECG) were developed as a component of the health risk assessment. The ECG incorporates the toxin's MRL, a range of bodyweights from 22 pounds to 320 pounds, the concentration of the toxin, and various consumption rates. Using the ECGs, someone can quickly estimate the number of eggs eaten/year required to reach the chronic MRL for any contaminant of concern. Estimated Lifetime Cancer Risk (ELCR) was calculated using the EPA's Slope Factors for contaminants near or above the MRL and adjusting the formula to represent each community in the study.

Egg Consumption Guideline Results and Discussion

ECGs were created for those analytes with an established MRL. Most ECGs were far above what would be considered reasonable gull egg consumption (i.e., for toxaphene, 1260 eggs/year). However, for the highest concentration found for Total PCBs (450 ng/g), the ECG for a 143 lb person from Unalaska equates to 12 eggs per year. Based on the highest concentration of TEQ (16.6 TEQs), the Unalaska ECG for a 143-pound person equates to 16 eggs per year.

Since some people may exceed these levels, samples from Unalaska were analyzed using EPA's ELCR estimates. This method estimates that the potential for one person in Unalaska to contract cancer from the PCBs found in the gull eggs could be realized only if the average gull egg consumption for every person in Unalaska exceeded 101 eggs per year for 70 years. Cancer slope rates are developed for only one type of dioxin, HxCDD, hence cancer risk was much lower (greater than 3,700 eggs per person per year for 70 years). Based on these results, it is assumed that the contaminants found in gull eggs from the five communities pose little risk to human health.

Since the PCB concentrations were much higher in Unalaska than in the other communities, there was a concern that the composite sample concentration was not representative of the individual eggs. Eight individual eggs were analyzed for PCB congeners. See Jack and Martinez (2003) for more information.

The results of this study were comparatively low when considered against those found in other studies (AMAP 1998, M. Wiborg 2002, SNT 2001, Weseloh et al. 2002, Turle et al. 1991). Further, many of these studies considered less PCB congeners, fewer dioxins and their concentrations were up to seven times the TEQ concentrations (Herbert et al. 1994) and up to 58 times the total PCB concentration (Weseloh et al. 2002) found in this study. Considering the results from the health risk analysis and the comparisons to other studies, the contaminant levels found in the five communities' gull eggs should pose little risk to the health of those harvesting them for traditional use.



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Climate Change and Alaska Native Villages

Highlights of GAO-04-142, a report to the Senate and House Committees on Appropriations, December 2003. Summary provided by Mike Bradley.

Why GAO Did This Study

Approximately 6,600 miles of Alaska's coastline and many of the low-lying areas along the state's rivers are subject to severe flooding and erosion. Most of Alaska's Native villages are located on the coast or on riverbanks. In addition to the many federal and Alaska state agencies that respond to flooding and erosion, Congress established the Denali Commission in 1998 to, among other things, provide economic development services and to meet infrastructure needs in rural Alaska communities.

Congress directed GAO (Government Accounting Office) to study Alaska Native villages affected by flooding and erosion and to 1) determine the extent to which these villages are affected, 2) identify federal and state flooding and erosion programs, 3) determine the current status of efforts to respond to flooding and erosion in nine villages, and 4) identify alternatives that Congress may wish to consider when providing assistance for flooding and erosion.

What GAO Found

Flooding and erosion affects 184 out of 213, or 86 percent, of Alaska Native villages to some extent. While many of the problems are long-standing, various studies indicate that coastal villages are becoming more susceptible to flooding and erosion due in part to rising temperatures.

The Corps of Engineers and the Natural Resources Conservation Service administer key programs for constructing flooding and erosion control projects. However, small and remote Alaska Native villages often fail to qual-

ify for assistance under these programs—largely because of agency requirements that the expected costs of the project not exceed its benefits. Even villages that do meet the cost/benefit criteria may still not receive assistance if they cannot meet the cost-share requirement for the

"Of the nine villages we were directed to review, four—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are planning to relocate, while the remaining five are in various stages of responding to these problems."

project.

Of the nine villages we were directed to review, four—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are planning to relocate, while the remaining five are in various stages of responding to these problems. Costs

for relocating are expected to be high. For example, the cost estimates for relocating Kivalina range from \$100 million to over \$400 million. Relocation is a daunting process that may take several years to accomplish. During that process, federal agencies must make wise investment decisions, yet GAO found instances where federal agencies invested in infrastructure at the villages' existing sites without knowledge of their plans to relocate.

GAO, federal and state officials, and village representatives identified some alternatives that could increase service delivery for Alaska Native villages, although many important factors must first be considered:

- * Expand the role of the Denali Commission.
- * Direct federal agencies to consider social and environmental factors in their cost/benefit analyses.
- * Waive the federal cost-sharing requirement for these projects.
- * Authorize the "bundling" of funds from various federal agencies.

What GAO Recommends

GAO presents to Congress a matter for consideration that directs federal agencies and the Denali Commission to assess the feasibility of alternatives for responding to flooding and erosion. In addition, GAO recommends that the Denali Commission adopt a policy to guide future infrastructure investments in Alaska Native villages affected by flooding and erosion. ☀



Fishing on the Yukon River near Ruby (Photo by Aaron Peters)

Presentation from the Northwest Alaska Regional Meeting

By Professor Terry Chapin, University of Alaska Fairbanks, Institute of Arctic Biology.

The National Science Foundation funded education program at the University of Alaska Fairbanks called Integrated Graduate Education and Research Training (IGERT) was created to work with students to understand how ecology, biology, economics, and culture all fit together. The Program is looking at the effects of people and climate on the bio-ecology regime of Alaska. Some of the things they have in common are that you can't separate ecology, economics and culture. They are really part of the whole picture. Alaska Natives have known this for a long time so scientists have a lot to learn from you in terms of how to do this program. One way we thought we might go about this was to organize a symposium on sustainability issues in Alaska. We would get together with people in communities and talk about these issues as you see them and as our students have been thinking about them and see if we can learn from one another.

Satellite and computer imaging being used by scientists today, shows us that no matter what angle you look at the globe, most of the temperature warming is happening in the Arctic. It's not a simple or even pattern of change, but you can see from year to year that there is a general pattern of warming. In 1977, it seemed to get warmer and has been warm since then. 25 years before that, it was generally cold in Alaska. Then the 25 years before that, it was warm. The climate system changes to different patterns and these patterns tend to hold place for a while. Figure A shows that since 1000 years ago, the temperatures in the northern hemisphere have gradually been getting cooler. This has to do with the earth's relationship to the sun. About 100 years ago, something changed that pattern and it has caused a change that can't be explained by the sun/earth relationship. 1998 was the warmest year in the last 1000 years. This pattern is caused by changes in fossil fuel emissions and changes in land use. Mainly this pattern is caused by changes outside the Arctic. You can see that the

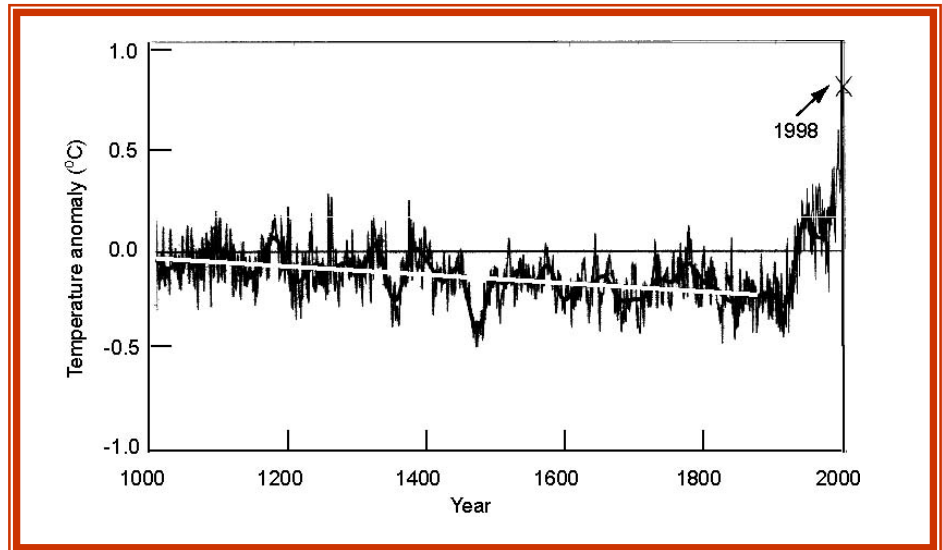


Figure A: Temperatures in the northern hemisphere have gradually been getting cooler.

pattern is getting warmer. Judging from the patterns of use of fossil fuels and changes in land cover and land use, this pattern is likely to continue.

We know it's getting warmer in complicated ways. In an area northeast of Nome, we know that trees were first established in that area about 200 years ago. That area is now a forest. The climate has gradually gotten warmer, more trees have filled in. 200 years ago, in higher elevations, there were no trees at all. Places that were tundra 30-50 years ago are starting to get trees. So some of the changes that are happening in response to this warming are that trees are moving into places where they didn't use to be. There are only one to three places where people have looked at this sort of thing, so we don't know how general this pattern is. Where there are no trees, it looks like things are changing in terms of the kind of plants that are there. We have about 50 of these photos to show this happens frequently, but we don't know where or why it happens. To find out more we need to talk to people that are on the land that move around and see a lot of areas. We need to also talk to people that know how things were 50 years ago and maybe know stories about how they were before that, in order to answer some basic science questions.

The land is getting greener when you look at it from satellites. My guess is that it's probably changes in these shrubs. It might be some other kind of change going on. Changes in shrubs might be a big deal. Depending on what kind of shrubs they are, they might be good for caribou or they might be bad for caribou. They may shade out lichens or change snow drifts. They may affect the hardness of the snow. These can have a lot of effects that will affect all the ecology of the area and a lot of the lives of the people that live there.

Since about 1980, in at least three different places on the North Slope, the permafrost is getting warmer. What is interesting is that it is getting warmer faster than can be explained by air temperature. So, again, it's not a simple change. Things are connected. It has to be something insulating the permafrost from the air. That's going to be either changes in snow cover or changes in vegetation.

We have seen from satellite pictures taken over the course of four different years, of lakes in the Council area, which are drying up. We know the temperatures are warmer but there hasn't been much change in the amount of rain or snow fall over this time period, it's mainly just a change in temperatures. We don't

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know whether it is that the water is evaporating, or if the permafrost is melting and running into the rivers. We don't know if drying lakes is a general pattern. Changes in river run off can tell us what happened on the land and what is happening in the ocean. River water is more productive than the ocean water. The boundary of river and ocean water is especially productive. The boundary region gets nutrients from ocean water and the river water keeps the plants and plankton near the surface to get enough light. This boundary is really important in terms of productivity. The changes that are happening on land and in the rivers are connected with things happening in the oceans and we need to understand those connections and we need to know what's happened over the long term.

Based on satellite images, we know that one of the things that seems to be happening during this recent warming is that the thickness of sea ice is decreasing. I don't think we understand clearly why the sea ice is decreasing. It appears to be partly that it's getting warmer, that the winds are changing, and that it may be a change in the amount of river water coming off the continents.

By measuring the amount of marine nitrogen that comes into the salmon lakes (and is deposited in the bottom sediment when the salmon carcasses deteriorate), scientists can reconstruct the number of salmon that have been coming to the lakes for a long time period. In the last 2500 years, there have been huge changes in the amount of salmon that come to the lakes. There was a huge amount of salmon about the time Christ was born and before that. And then, for some reason that we don't understand, there were a lot less salmon for a long time. It is possible to learn from archaeology that at the time salmon declined, there was a change in the way people lived on the land. When the salmon came back about 1000 years ago, there was another huge change in the way people lived on the land. So there has obviously been a really strong connection between salmon and the people of these areas for a long time. It may be that these changes in people may have caused the changes in salmon rather than the other way around. The point is that it is all connected. You can't think about the changes in environment causing changes in the fisheries--it's a connected system.

There are several reasons why warming is happening more at high latitudes. When snow and sea ice melts, the land and ocean absorb more heat and that heat moves to the atmosphere and the air gets warmer. So part of it is caused by changes in snow cover and sea ice and this occurs most strongly at high latitudes.

One of the things that we are trying to understand is whether changes in vegetation might also be causing some of this warming. We learned that the amount of warming that is caused by a change from tundra to a shrubby area on a unit area basis is as great as the amount of warming that happens with a doubling of the concentration of atmospheric CO². If you go from a shrub land to a forest, you get another heating impact that is as great as another doubling of the concentration of atmospheric CO². We hear a lot about how changes in CO² concentrations cause changes in global warming. The same kinds of changes in vegetation are having the same effect, but we don't know how widespread those changes in vegetation are. We can't figure out whether these changes in vegetation are an important cause of warming in the north unless we can figure out how widespread they are.

The two main messages are: that all these things are connected and we don't understand the connections well and there are a lot of long term changes. We know some of the reasons for these long terms changes, but we don't know where they occur. We don't know what the changes have been and we don't know when they began to occur. I think it's important not only to be talking with Alaska Native people, but to be thinking of a different way of doing these things. There aren't instrument records or photographs going back hundreds of years. We have to rely on stories and traditional ways of passing on information, I think, to answer a lot of questions about why the world is changing. We have to find good ways to combine our ways of doing science.



Meet ANSC's New Staff

Ms. Leslie Hsu Oh was born in Raleigh, North Carolina. Her parents, Auxilia and John Hsu, came to the United States from Taiwan to pursue their graduate studies. Her mother and father loved Leslie and her brother, John, very much and made many sacrifices to provide their children with love, health care, education, and faith. Leslie's parents also were very protective of their children because they nearly lost her brother, John, when he was born.

The near-death experience of Leslie's brother brought the family very close. Each summer, the family would travel throughout Indian Country and national parks to give thanks to the Creator for the beauty of the land.

One day without any warning, John, then 18, awoke with severe pain in his abdomen. The doctor explained that both John and Leslie's mother were hepatitis B carriers and that John had liver cancer. A year later, John passed away. One month after his death, Leslie's mother was diagnosed with liver cancer. She died the following year. Leslie was only a junior in college.

Learning that their deaths could've been easily prevented by the knowledge that Asians are at high risk for hepatitis B and that there is a safe and effective vaccine, Leslie channeled her grief towards raising

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Native Language Keeps Identity Alive: A Student's Perspective

By Courtney Moore, Biology major,
University of Alaska Fairbanks.

I was five years old as I watched grandma Effie Kokrine's cheerful face smile with delight as she counted aloud in Athabascan, "One, two, three, four!" We listened avidly until she reached four and said, "Denk'ee," then we all squealed with delight to hear such a goofy, sounding word.

Today, I only remember that number four and can't recall any other. We absorbed everything that Mrs. Kokrine taught us about our language, culture, and lifestyle with enjoyment, for we all loved that she brought us a sense of who we were. She had connected us to our ancestors' ways of life, and illustrated that our culture was unique and all our own.

Although Native American languages are declining due to language dominance, undetermined tribal members, and uninvolved parents, schools, community organizations that are not actively reinforcing the use of cultural languages, it is not too late to save these valuable portions of our cultures. Languages all over

the world have been declining steadily in the past centuries. According to the renowned linguist, Michael Krauss, over half of the world's six thousand languages will cease to be spoken in the next century. Native American lan-

"There are twenty tongues still known to Alaska's indigenous people, of those only two are being taught to children".

guages were once spoken in all of America's fifty states, and now only twenty-nine states have indigenous languages that are being spoken. According to W. Wayt Gibbs, "There are twenty tongues still known to Alaska's indigenous people, of those only two are being taught to children".

I surveyed a group of people whose ages ranged from 9-59 years of age: 68% said

that they are somewhat active in participating in their cultural customs; 32% said that they did not; 85% said that they sing their native songs but don't know what they are about and weren't taught the meaning of the words; while 15% said that they fluently speak their language. One reason for this is language shift, which is when another strong language overshadows the weaker language causing it to become extinct, according to America Meredith, an active Cherokee artist. Shorris believes that weak languages usually fall prey to strong languages because the speakers of the weak language must communicate with the speakers of the strong language in the strong people's language.

"English is taking over the rest of the world's speech, just as the dollar took over the Ecuadoran currency, the forces of the English Only grow stronger in the United States". The history of the English Only movement is a compelling example of language shift. They are groups of people who push for English to be the official language of the United States, as a means to unify the country. This society gained support in the 1980's, when its focus was directed at the Spanish-speaking Latin Americans. T.J. Morgan, Commissioner of Indian Affairs, depicted English as "the language of the greatest, most powerful and enterprising nationalities beneath the sun". Boarding schools in the late 1800's and early 1900's are another example of the English Only dominance. Boarding schools back then strongly prohibited the use of one's native tongue and were punished if

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awareness about hepatitis B by empowering communities to take action in health prevention, developing culturally responsive campaigns, and providing access to free screenings and vaccinations. While she received a Masters degree in Health Communications from Harvard School of Public Health, she founded The Hepatitis B Initiative (www.hepbinitiative.org) and consulted for the Navajo Nation's Chinle Comprehensive Health Care Facility on partnering traditional Navajo medicine and Western medicine. She found much solace for her grief on the Navajo Nation and was adopted by Ursula Knoki-Wilson to the Red Running into Water Clan.


She graduated as an Albert Schweitzer Fellow and received the first Julius B. Richmond Young Leader in Public Health Award for outstanding dedication to the health and well-being of the community and demonstration of initiative and advocacy in public health. In addition, she

also received the first National Award for Excellence in Public Health Leadership; the Sun Memorial Award for exemplifying a commitment to improving the health and well being of people in underserved populations; and the Schweitzer Award for reverence for life.

From 1999-2004, Leslie worked closely with the Secretary of Health and Surgeon General's staff of the U.S. Department of Health and Human Services and served as Federal Liaison to the White House Initiative on Asian Americans and Pacific Islanders.

She married Thomas Oh in 2002 after he proposed to her in Denali National Park. They both fell in love with Alaska and felt a calling to find jobs here in which they could truly make a difference. Although it took some time for them to find those jobs, they spent those two years expanding the Hepatitis B Initiative to the DC area (providing faith-based hepatitis B outreach) and Leslie had a chance to

work with ANSC, Southcentral Foundation and the Alaska Native Medical Center staff and patients on www.healthfinder.gov/justforyou Alaska Native resources.

For Leslie, Alaska is a truly a special place. Her mother's last request was for her father to bring her to Alaska. It has taken her a long time to fulfill her mother's wishes and her own. She is excited to join ANSC and looks forward to growing mentally, physically, emotionally, and spiritually with all of you. 

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caught. The schools were meant to “civilize” the natives and teach them the western ways. “Later, many former students regretted that they lost the ability to speak their native language fluently because of the years they spent in the boarding schools”. My grandmother was put into elementary school when she was young, and in her short stay her teachers strongly prohibited the use of our native tongue.

People believed that native languages were of a barbaric and savage existence; therefore, they longed for the end of such appalling lifestyles. Bruce Tiedeman, an Aleut from the Chugach region, remembers reading signs in the 1950’s saying “No Dogs or Natives Allowed.” Natives were pushed to switch to the superior language because they may have believed that it would improve their social and financial status. More often than not, small communities automatically switched over without a second thought. People are not being pushed to speak their language anymore.

The “Western Ways” is a reason why people lose interest in their language. Rather than taking the time out to learn their language, people would rather do other things such as spend time with their family, playing sports, shopping, getting on the internet, or watching television. People today lack the motivation to really exert themselves to find the resources and materials needed to learn their language. Native people may have come to believe that there is no hope or use for their language anymore, and don’t wish to pursue learning their language.

Parents need to give children hope and the aspiration to want to learn their language. Parents are the most important factor in their children’s lives, and as such they need to incorporate the use of their language with their children. “Parents are the first teachers of their children and provide the foundation on which the language learning of future generations rests” (Assembly of Alaska Native Educators). When I was in elementary school, my mother took a native language class for a winter, and by doing so, she aroused my interest as well. Unfortunately, she did not have the

time in her schedule to keep up with her studies and could not continue learning.

Schools are another reason children aren’t getting the proper educational needs to learn their language. “Schools must be fully engaged with the life of the



Courtney Moore is a Koyukon Athabascan from Tanana, Alaska raised in a traditional Athabascan lifestyle. She is currently attending the University of Alaska Fairbanks working towards obtaining her Bachelors degree in biological sciences. Her goal is to become a pediatrician so she can remain close to home and help her native people in the ways of modern medicine and technology. She won the titles of Miss Nuchalawoyya and Miss World Eskimo-Indian Olympics 2004.

communities they serve so as to provide consistency of expectations in all aspects of students lives” (Assembly of Alaska Native Educators). While in elementary school, my class and I were occasionally exposed to several elders, such as Effie Kokrine, who were fluent Athabascan speakers. Sadly, the school did not persist in bringing them in to teach us after I completed second grade, and I believe that I would know more words and phrases than I know today if they had continued. Of the teachers then and now in that school, none could speak Athabascan fluently.

Although schools are an important part of children’s lives, community organizations are also just as important. Community organizations are other ways children identify with their background and culture, which enables them to formulate a generalization regarding their language. Communities today are gradually weakening in their attempts to save their native languages. “Native communities and organizations must provide a healthy and supportive environment that reinforces the learning and use of the heritage language on an everyday basis” (Assembly of Alaska Native Educators). As a child and a young adult, I actively participated in potlatches, native dancing, and gatherings that our community organized. Elders usually gave thanks and prayers in Athabascan to begin and adjourn the get-togethers, and as a typical child, I never took the time to comprehend what they had said.

Although these factors do lead to the extinction of languages, there is hope in saving these dying languages. There are many languages around the world that have taken the right precautions in keeping their languages alive. The Hebrew language was an extinct language for several millenniums, but was revived by the modern state of Israel and is now spoken by millions of people. “The effort to preserve these and other languages is furious, as linguists and their students across the earth record whatever they can find--song-birds or carrion, it matters not at all” (Shorris). I had visited Unalakleet and Point Hope for basketball trips while in high school, and there I found that they had teachers who taught the children their language throughout a period of the day. “With the necessary absolute determination of the people themselves, it has been shown that languages can be revived” (Krauss). The Coquille tribe in Oregon is working to revitalize their extinct Miluk language; their only materials are tape recordings of the last living speakers from the 1930’s. Many native people of today are faced with the realization that their language may become extinct.

Native people and communities need to realize the danger in which their languages reside. They need to step up and take affirmative action in finding new ways to help save their language. Community members must make themselves

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The Subsistence Harvest of Harbor Seals and Sea Lions by Alaska Natives

Excerpt from "An Overview of Study Findings, The Subsistence Harvest of Harbor Seals and Sea Lions by Alaska Natives in 2002", Alaska Native Harbor Seal Commission and the Division of Subsistence of the Alaska Department of Fish and Game.

The Division of Subsistence of the Alaska Department of Fish and Game and the Alaska Native Harbor Seal Commission conducted a research on subsistence takes of harbor seals (*Phoca vitulina*) and Steller sea lions (*Eumetopias jubatus*) by Alaska Natives during calendar year 2002. This was the tenth year documenting subsistence takes of these marine mammals. Subsistence takes were documented in 1992 through 2003, with no research conducted in 1999. The research was done in cooperation with tribal governments and organizations representing marine mammal hunters, including the Aleut Marine Mammal Commission. Funding was provided through a contract with the National Marine Fisheries Service.

The geographic area covered by the research is the Alaska coastal waters south of Cape Newenham (western-most Bristol Bay), including the Pribilof Islands, which matches the general distribution of harbor seals and sea lions in Alaska. The use of these marine mammals by Alaska Natives for food and raw materials has long tradition in this part of Alaska, since before historic contact to the present.

The estimated subsistence take of harbor seals by Alaska Natives in 2002 is 1,834



Harbor Seals
(Photo by Thomas O'Neil)

seals, with a 95% confidence range of 1,479 to 2,431 seals (+/-32.5%). Of the total estimated take, 1,585 seals (86.4%) were harvested, and 249 seals (13.6%) were struck and lost. The geographic distribution of subsistence harbor seal takes in 2002 is shown in Figure 1. The largest take occurred in Southeast Alaska.

The estimated subsistence take of sea lions by Alaska Natives in 2002 is 185

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Continued from p.8- Native Language Keeps Identity Alive

available to listen, speak, and learn their languages. Native communities and organizations must create programs for tribal members to learn and study their languages. Parents need to immerse themselves and their children in those programs available to them. Elders have

"Diversity is an important aspect of a young person's life, our native languages keep our identity alive"

to interact with the community and inspire language learners in the traditional ways. Schools need to find fluent speaking teachers to teach and immerse children in their native heritages. The native people must think about the future and how their children's lives will be affected if their language is lost to them. Knowing one's language gives a person a sense of identity and opportunity to keep such an exquisite entity alive. "Every language has its own divine spark of life; philosophers have said that languages are forms of life" (Krauss).

People do not have any right to decide if a language should be superior to another. "Diversity is an important aspect of a young person's

"A person is not an Indian if they cannot speak their language"

life, our native languages keep our identity alive," said Joseph Thomas, a young Gwichyaa Gwich'in from Fort Yukon. Today, I find myself thinking of all the native words that I know and trying to incorporate them into my everyday life. I have heard several elders say, "A person is not an Indian if they cannot speak their language." As an Athabascan native, I believe that my culture, my heritage and my language are vital parts of knowing who I am.

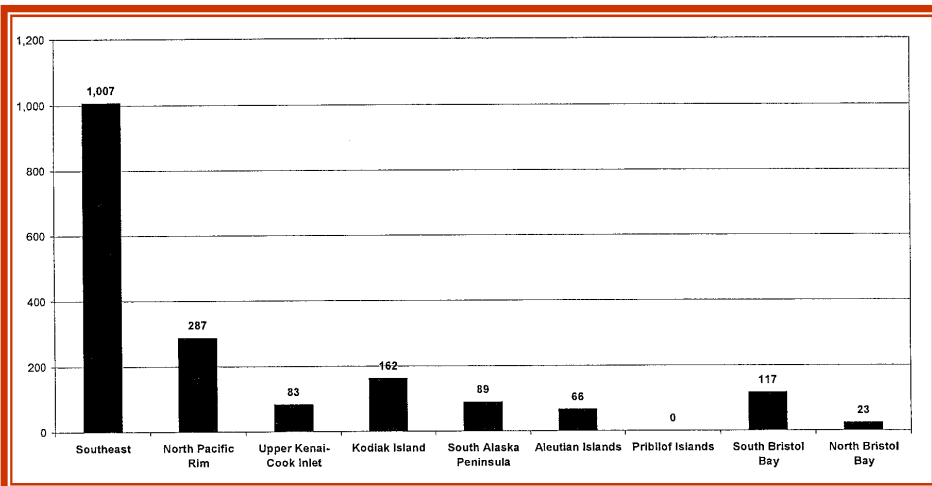


Figure 1: Subsistence Take of Harbor Seals by Region, 2002

*Continued from p.9-***The Subsistence Harvest of Harbor Seals and Sea Lions by Alaska Natives**

An ANSC Intern's Experience

By Karissa Demmert, Anthropology senior student at Macalester College, Minnesota.

My internship (funded by NSF through ANSC) experience this semester was with Dr. Steve Langdon at the University of Alaska Anthropology Department. Over the course of the semester, I had the opportunity to experience various aspects of the academic setting as well as the chance to work on interesting projects related to Alaska Native Science and Traditional Knowledge.

During the course of the semester, I worked on various projects for Dr. Langdon. One of the projects involved organizing traditional place's names of the Tlingit people of the Klawock area. I worked to develop a database for the names along with their location and translation. I worked with graduate students to place these locations on a GIS map. I was unfamiliar with the GIS system and learned a great deal about the various uses of the program.

Another of the projects I worked on during the semester was transcribing interviews with elders conducted by Dr. Langdon. These interviews were a part of the Klawock Salmon Traditional Knowledge Study. This study was conducted in order to obtain information about traditional uses of salmon, traditional locations of salmon harvest and other pertinent information regarding the use of salmon. The information gathered in this project will be transferred to the Klawock Interior Regional Authority for their use in the development of future programs regarding traditional lands and usage of subsistence products in the village area.

I also had the opportunity to expand my familiarity with the computer programs: Adobe Illustrator and Microsoft Power Point. I used these programs to create posters. The posters are aerial photos of the villages of Craig and Klawock taken by the Navy in 1929. I marked the structures and objects on the photos so that when printed as posters, elders in

Continued on page 11

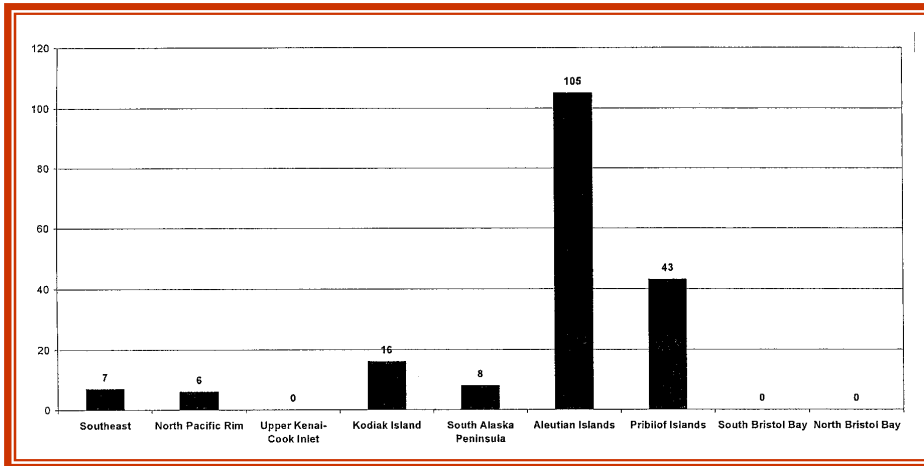


Figure 2: Subsistence Takes of Sea Lions by Region, 2002

animals, with a 95% confidence interval range from 145 to 248 sea lions (+/-34.4%). Of the total take, 144 sea lions (77.8%) were harvested, and 41 sea lions (22%) were struck and lost. The geographic distribution of sea lion take in 2002 is shown in Figure 2. Most of the take occurred in the Aleutian Islands and Pribilof Islands regions.

In partnership, the Alaska Native Harbor Seal Commission and the Division of Subsistence of the Alaska Department of Fish and Game will organize another round of household interviews to document subsistence takes of harbor seals and sea lions for 2003.

For more information, the complete results for the project appear in: Wolfe, Robert J., James A. Fall, and Ronald T. Stanek, 2003. *The Subsistence Harvest of Harbor Seals and Sea Lions by Alaska Natives in 2002*. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 277. Juneau. 🌞

Stellar Sea Lions
(Photo by Joel Sartore)



Did you know?

Seals have a smaller and sleeker torpedo shaped body. They rarely vocalize, are quite shy and are less gregarious than sea lions. Stellar sea lions are larger and have longer flippers. They swim with their front flippers, while seals swim with their hind flippers.

Sea lions and seals are used for clothing, food, and making of handicrafts.

(North Pacific Universities Marine Mammal Research Consortium and TASSC)

Recent Activities of the Alaska Native Science Commission

The Arctic Climate Impact Assessment (ACIA) held an informational workshop for Alaska stakeholders on March 8th and 9th, 2004 at the Alaska SeaLife Center in Seward, Alaska. This workshop allowed participants to hear about the ACIA from researchers in Alaska who have contributed as authors to the assessment. It also allowed the ACIA to hear concerns and challenges faced by Alaska stakeholders. ANSC provided funding for Native people from several areas of Alaska who have experience and knowledge of issues relating to climate change and the impact it is having on their communities and way of life. ACIA is examining possible future impacts on the environment, human health and social and economic activities as well as adaptations and responses. It was critical to hear from the Alaska Native stakeholders so they could share their first hand experience and knowledge. Participants included Elders, Native scientists and community experts. The information gathered at this meeting will be shared by ACIA with the Arctic Council Ministers on November 17-18, 2004 in Iceland.

The Fifth International Congress of Arctic Social Sciences (ICASS-V) and

Partnering in Research Workshop was held in Alaska May 19th - 23rd, at the University of Alaska in Fairbanks, Alaska.



Jack Kruse, Patricia Cochran and Larrisa Abryutina presenting at Partnering in Research Workshop in Fairbanks (Photo by Nancy Edtl)

The Arctic Research Consortium of the U.S. (ARCUS) and the ANSC partnered to organize, present, and facilitate conference discussions on strategic partnerships in a two-day workshop. The workshops highlighted the work of several sets of partners (U.S. and international) that involve academic and Native researchers working with Arctic communities on projects that serve the goals and

interests of both. The workshop provided conference participants with insights into how to create partnerships between Arctic residents and researchers, how partners can complement one another, and what the successes and failures of the partnership enterprise are from each partner's point of view.

The Indigenous Knowledges Conference held at Penn State University May 26-30, 2004 was an international conference that brought many people from indigenous cultures from all over the world together to share information, knowledge, and culture. It focused on valuing local knowledge; local knowledge and culture in multi-generational learning; indigenous ways of relating to nature; investigating and applying diverse ways of knowing; indigenous knowledge in preservation of natural resources and use of Native plants; engaging and transforming the academy; food and nutrition sciences; ethical decision-making; health related needs of Native people; and an Alaska Native peoples panel as well as other pertinent discussions, groups and planning sessions. This conference also included a "Study Day" for planning an outline of a curriculum for graduate certification in Indigenous Knowledge which ANSC participated in. ☀

Continued from p. 10-An ANSC Intern's Experience

those communities could identify the structures. This way, information regarding the lay out and development of the communities could be obtained.

The internship this semester was very interesting and valuable to me both academically and personally. The village area of study being that of my family made the information particularly interesting. Listening to the stories of the elders in the Traditional Knowledge Study afforded me a great deal of knowledge I otherwise would not have had the opportunity to hear. I feel very privileged to have heard their stories and experiences. The elders of our communities have such a wealth of information. Offering an outlet, such as the interviews conducted, to transfer that knowledge on to future generations is crucial to the perpetuation of Native Knowledge and Culture.

The internship with Dr. Langdon was very beneficial to me. I hope that other students will have an opportunity to take part in the same experience in the future. ☀

Karissa Demmert (Photo by Sealaska Heritage Institute)



Did you know?

Alaska Natives are increasingly urban. About 42 percent live in urban areas now, and that share could reach more than 50 percent by 2020. Populations of remote Native villages continue to grow, despite the migration to urban places.

(Institute of Social and Economic Research, University of Alaska Anchorage, 2004)

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Mission: To endorse and support scientific research that enhances and perpetuates Alaska Native Cultures and ensures the protection of indigenous cultures and intellectual property. To provide information to Alaska Native Communities regarding science and research that impacts their health, life, culture and environment.

For questions, comments, submission of articles or to be added to our mailing list, contact Leslie Oh at loh@aknsc.org or 907-258-2652. ANSC reserves the rights to all submissions for content and editing.



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