



Jayson Smith photos.

Warm Springs Extension hosted cooking workshops in August. The groups made cookies, and huckleberry jam.



Howlak Tichum

Karen Moss-Small ~ 1957-2015

Karen Loa (Kitty) Moss-Small passed away on July 10, 2015, from an illness that she battled for the past five years at Fort Hall, Idaho.

Karen was born June 25, 1957 at Blackfoot, Idaho, to John Henry Moss (aka big John), and Phyllis Catherine Shortman-Moss, of Hayes, Montana.

Karen spent her childhood at Warm Springs, and moved back to Fort Hall in 1975 with her family. Karen graduated from Madras High School, class of 1975.

She studied and graduated with a Farm Business Management degree from Idaho State University, 1995-1998. Karen worked for the Shoshone-Bannock Tribes for 25 plus years, starting with the WIC program, Head Start and Land Use Department, Agricultural Resource Management program, and retired in 1998.

Karen was an athlete, and enjoyed playing competitive softball with

the known as the Sultans, who won several tournaments in the 1970s and '80s. She played volleyball and tennis, and she loved to run.

Karen enjoyed outdoor camping, hunting and fishing with her family, and beadwork. She enjoyed traveling with her family, and was very supportive of her husband throughout his service on the Fort Hall Business Council. Through her work and sports, Karen had many lifetime friendships, and will be greatly missed.

Karen practiced traditional Sundance, and served as an assistant to the Lady Chief in Idaho, and also danced at Montana. She also practiced with her family in the Sweat Lodge.

Karen met Nathan Small in 1976, which was the beginning of their 39 years together. They had three children, Sheldon Lee (Alice) Small, Daloa Dawn (Aaron) Pebeahsy and Nathaniel Uphawk Small, and for their brief time raised Donovan Lee Osborne. Karen was very involved in raising her grandchildren, Aaron Wayne Pebeahsy Jr., Mary Loa Dawn Small, Jalen Troy Pebeahsy,

Johnae Mae Pebeahsy, Davy Yupe, Iva Catherine Yupe, Rosalee Teresa Small, Ayiona Little Thunder, Donovan Gage Osborne and John Storm Osborne, all of Fort Hall, Idaho.

Karen is survived by her husband, children and grandchildren, her mother Phyllis Shortman-Moss, her brothers, Daniel (Tula) Moss, Robert Henry (Elizabeth) Moss and sisters; Betty Moss-Boyer and Diana Moss, all of Fort Hall.

Karen's father, John Henry Moss (Big John) and eldest brother, William John Moss, maternal grandparents, Josephine Shortman and William "Bill" Shortman of Hayes, Montana; paternal grandparents, Henry John Moss and Elsie Ellen Truchot-Moss, precede Karen in death.

Also, Karen's atwai father, John Henry Moss (Big John) was the Chief of Police from the mid 1960s to the late 1970s with the Confederated Tribes of Warm Springs.

There will be a healthy cooking class this Thursday, Sept. 3, at the IHS clinic kitchen. Join nutritionist Kacey Conyers in making a fruit pie overnight oats in a jar. The class is open to the first 30 people who attend. Call 541-553-2460 for more information.

The Warm Springs Back to School Barbecue is coming up on Thursday, Sept. 3 at the Warm Springs Eagle Academy, from 4-6 p.m. This is a chance for students, the community and teaching staff to get together, get to know one another, and gear up for the new school year. There will be backpacks and school supplies for students, plus information, food and fun. Everyone is invited.



Salmon struggling in a changing climate

by Laura Gephart
CRITFC Climate Change Lead

For years, tribal members have been on the front lines of seeing the effects of climate change in the harvest of the First Foods.

From earlier ripening times to odd game behavior, they've seen the ancient patterns disrupted more and more. Salmon and other fish are affected by these changes as well.

As the region warms, winter snow instead falls as rain, and what snow does fall melts earlier.

This results in the water traveling through the system during the winter, leaving much less during the hot summer months.

The increased winter flows scour the riverbeds, disturb nests, and cause physical damage to both salmon eggs and juveniles, while the lower summer flows increase water temperatures further, reducing the overall habitat available to salmon.

This year, the Columbia River basin has experienced a winter of extremely low snowfall levels and a summer of high air temperatures, warming up the rivers.

The snowmelt came off earlier than normal, resulting in extreme low flows in the mainstem and tributaries.

While the 2015 Columbia River runoff volume is not historically low, the problem for fish is the combination of low flows and high water temperatures.

The water temperature

above Bonneville Dam, for example, has averaged 73 degrees in recent weeks—9 degrees warmer than the average for the same time period over the last five years. For salmon, that's literally the difference between life and death.

Warm water and salmon

While the early high flows help adult fish returning in the spring, the summer combination of low flows and high water temperatures create a stressful environment for migrating adults and juveniles.

Often adult salmon will avoid warm freshwater, using precious energy reserves to swim around warm water areas. Or they hold in cooler water refuges, such as tributaries or spring-fed lake areas, waiting for the temperature in the mainstem to cool down.

This can delay or even prevent spawning. Higher water temperature can also speed up juvenile salmon development. This can result in smolts reaching the ocean before their food source, forcing them to survive on less or starve.

Bacteria that can infect salmon such as *ichthyophthirius multifiliis* (ich) and *columnaris* (gill rot) thrive in warm water.

These diseases spread more quickly when the rivers are crowded by low flows, and can lead to increased pre-spawn deaths. A recent USGS video showed severely infected sockeye salmon taking refuge in the cooler water of

Drano Lake.

System out of balance

Warm ocean temperatures favor fish like sardines and albacore tuna, but salmon and steelhead rely on coldwater nutrients.

If the warm temperatures continue or expands, Pacific Northwest salmon and steelhead could suffer in coming years. This has happened to marine mammals, sea birds, and Pacific salmon in the past.

Juvenile salmon and steelhead migrating from the Columbia River to the ocean this year and next may experience poor survival.

The salmon region of the North Pacific Ocean has never been so warm for so long in recorded history. The expanse of warm water has sea surface temperatures as much as 5.4 Fahrenheit higher than average. This has lasted for months, in an area hundreds of miles across.

The situation does not match recognized patterns in ocean conditions such as El Niño or La Niña, which both affect marine food webs.

the National Oceanic and Atmospheric Administration's National Weather Service estimates a 65 percent chance that a severe El Niño will occur this fall or early winter. This means higher temperatures and lower precipitation for the Columbia River basin.

With more precipitation falling last winter as rain, drought conditions during the spring, and unusually high summer temperatures, by July



This fish, found in Drano Lake, suffering from ich.

Courtesy USGS

the Wallowa Mountains this year were snow-free.

Planning for change

Although this past winter and summer might be just a rare event, it could be preview of the new normal predicted by climate models.

The Columbia River tribes have been working on planning for a changing climate, including climate change research, advocating for river operations modifications, calling for fish passage above Grand Coulee and Chief Jo-

seph Dams, and completing habitat projects designed to help cool down tributaries.

Addressing climate change impacts is also one of the recommendations in the tribes' salmon restoration plan, Wy-Kan-Ush-Mi Wa-Kish-Wit.

These efforts, however, won't stop a warmer climate. To even begin to do that that will require dedicated international cooperation. Knowing this, the tribes have been advocating for the U.S. to address this issue on a national and international scale.

Everything is connected

One of the most precious traditional teachings the tribes hold is the concept that "everything is connected."

For thousands of years, the tribes used this teaching to live in an appropriate and sustainable way on the earth. To properly address this threat, the world must be willing to listen and incorporate this traditional Native wisdom into their activities and actions, not only for themselves and future generations, but for the very planet itself.