Symposium brings together delta science

Researchers and presenters from eight states including Alaska recently gathered in Cordova for the 13th Copper River Delta Symposium.

The symposium began in the 1970s as a forum for researchers and managers to exchange information and better integrate research efforts on the delta. Since then the symposium has evolved to looking at the delta as a whole system that is not only important to the region but to the Western hemisphere.

A lifetime achievement award was given to pilot, biologist, author and adventurer Jim King. King first came to Alaska in 1959 at the age of 21. Although he retired in 1982, King has continued his work studying birds. His most recent book was aptly named "Attending Alaska's Birds." Descriptions of King's work typically include the words "the first" including his work on the Copper River Delta to plan and manage the first complete census of Alaska's trumpeter swans.

"Jim King is a model for conservation and conservationists," said Erin Copper, biologist with the U.S. Forest Service. "He cares deeply about the resource. When I look at his life, I hope that I have the same passion for conservation for my entire life and beyond my service as a paid professional."

Presentations by researchers at the symposium ranged from geology and geomorphology to avian nesting ecology and trophic relationships on the Copper River Delta. The meeting opened with a timely presentation by George Plafker of the U.S. Geological Survey on the delta's history of massive earthquakes such as the 1964 uplift.

Quake timing

According to Plafker, the data gathered through sediment sampling indicates that prior to 1960, massive earthquakes on the Copper River Delta had repeat times which range from about 300 to 1,000 years and average 600-700 years for the 5,600-year period Plafker examined. Interestingly Pflaker notes that researchers did not find evidence of small earthquakes during that time on the Copper River Delta.

Jeff Conaway and Tim Brabets, also of the U.S. Geological Survey, gave a presentation on the Copper River channel migration and its effects on the Copper River Highway. According to Conaway and Brabets, flow distribution through the bridges was relatively stable until the mid 1990s. In 1991, up to 68 percent of the Copper River flowed through three bridges on the western side of the delta. However, in 2004, these bridges conveyed only 8 percent of the flow while 90 percent of the overall discharge flowed through three bridges on the eastern side of the delta. Migration of the river across the delta and redistribution of the discharge has resulted in streambed scour at some bridges, overtopping of the road during high flows, prolonged highway closures and formation of new channels through forests. Conaway and Brabets say that due to the migration of the river, these events and hazzards will likely continue in 2011.

Several presentations focused on climate change and likely impacts for fish on the Copper River Delta. Global climate models project warmer future climates with relatively more warming occurring in the northern latitudes and during the winter. Warmer temperatures on the Copper River Delta could mean winters with more rain and less snow resulting in higher winter water flows, decreased snow pack, lower spring flows, and changes to water temperature. Additionally, marine environments are likely to be more acidic. Scientists at the U.S. Forest Service examined
likely impacts of differentials in water flow and temperature in salmon population dynamics and survival.

**Stopover status for birds**

The Copper River Delta is the largest contiguous wetland along the Pacific coast of North America. Many similar coastal wetlands that used to exist further south (such as San Francisco Bay) have been diminished by human development. As such, the Copper River Delta is the most important stop-over along the Pacific flyway for waterfowl migrating to the Arctic. It also serves as a nursery ground for salmon and other fish species, and is an important area for recreation, hunting, fishing, and birdwatching, both for local residents and tourists. The delta also provides scientists with an ideal “natural laboratory” to explore ecological relationships and the impacts of climate change on wetland systems.

In total, 40 presentations covered topics from climate change to sport fishermen, with strong representation from Cordova’s scientific community. The meeting agenda is still up on the SeaGrant website (http://seagrant.uaf.edu/conferences/2011/crdss/index.php). The PowerPoint presentations as well as the audio of each presentation will eventually be posted to http://www.ecotrust.org/copperriver/.

Jennifer Gibbins can be reached at jgibbins@alaskanewspapers.com, or by phone at 907-424-7181.

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