Seward NOSB team suggests new approach to managing silvers

February 16, 2013 6:03 pm | 1 comment | Views: 86

“Don’t Say No to Coho” team presents oral research project at NOSB 2013. Carol Griswold photo.

By Heidi Zemach for Seward City News

Seward High School’s National Ocean Sciences Bowl team, “Don’t Say No to Coho,” produced an interesting original research paper and oral report for the competition that explores some ideas about coho, and the health of Resurrection Bay that not many people in the area are thinking or talking about. They looked into Seward’s possible overreliance on artificial, hatchery-produced silver salmon, and weighed whether doing so is wise, and whether it wouldn’t be better for the environment of Resurrection Bay if greater efforts were focused more on improving the habitat, and growing back our wild coho population. Team members included Team Captain Alex Ashford, Isabel Barnwell, Josephine Braun,
Maranda Clark and Kara Knotek. They were coached by SHS science teacher Carlyn Nichols.

Team members said they decided to focus on coho (silver) salmon due to the lack of public concern that the salmon we have, and make tourism dollars off of, are so dependent on hatcheries. Nor are most citizens or researchers concerned enough about the overall health of the estuary, they said, because the hatchery-produced salmon keep returning each year in relatively good numbers and size.

The students relied on research papers, newspaper articles, and interviews with a variety of sources including Cook Inlet Aquaculture Association, Cindy Clock, of the Seward Chamber of Commerce, and also owner of a charter boat; Alaska fisheries writer Laine Welch, Anchorage Daily News articles, studies by the Alaska Department of Fish and Game, Alaska SeaLife Center, Native Fish Society, Native Fish Society, Pacific States Marine Fisheries Company, Usibelli Coal Mine, and more.

The Seward Silver Salmon Derby brings in thousands, maybe hundreds of thousands of dollars for Seward every year, Barnwell said. “We are paying 50 cents per smolt in order to keep the estuary coho numbers healthy instead of trying to help restore the natural salmon populations.” In 2012 Cook Inlet Aquaculture Association stocked Bear Creek Weir with 40 thousand coho salmon. This summer, the City of Seward and Seward Chamber of Commerce plans to pay to stock the river system with 50,000 salmon fry, reared in the state’s new warm-water hatchery. They will be partnering with the Cook Inlet Aquaculture Association to meet stocking goals not met since 2002 (Seward Chamber of Commerce, 2012). That would be a total of 365,000 coho salmon released instead of the regular 315,000.

While artificial hatchery salmon are extremely important for the economy, they are not necessarily healthy for the estuary, Barnwell said.

The importance of protecting and restoring the wild coho salmon instead of using hatchery salmon is because of natural selection, according to their report. Not allowing salmon to evolve along with their environment, instead of remaining static, creates a weaker and less adaptable fish population. Research shows that wild coho eggs do not survive very well in the estuary under current conditions, perhaps because they hatch earlier than normal, or due to interbreeding with hatchery-fish, making them less adaptable to changing environment, said Maranda Clark.

Cook Inlet Aquaculture Association (CIAA) releases around 450,000 silver salmon into Bear Lake, and around 2.4 million sockeye fry into Bear Lake every Spring. A 2012 study conducted by Cook Inlet Aquaculture Association, which manages the hatchery operation on the Kenai Peninsula, sampled 316 coho salmon as they exited Bear Lake. It discovered that only 1.6% of the population was from natural stock.

Another assumption for their small numbers is a lack of natural spawning grounds within the river and lakes for wild coho salmon because of poor stewardship. Bear Lake is “fertilized” each year, stimulating phytoplankton growth, and thereby increasing zooplankton population, which is the main source of food for the salmon fry. Meanwhile, they said, “The city assumes that purchasing more fry and smolt, with little regard for the fish habitat, easily controls the population of salmon. This is a problem,” the report said. Because if the estuary is not tended to, eventually any fry or smolt, wild or hatchery bred, will not thrive if there is pollution and a lack of food.

Alex Ashford compares the situation here in Resurrection Bay with Eel River estuary, near Humboldt County, California, which has a similar environment and experienced a rapid decline in its wild coho salmon population in the late 1970’s. Coho were listed as an endangered species there. Their decline has been attributed to a variety of factors including alteration of sediments, but possibly also interbreeding with hatchery salmon, overfishing, development, logging, fires, pollution and climate change, he said.

The Seward students could find little data other than anecdotal evidence to support the idea that the local system once supported a larger wild coho population. But they believe the stories people tell that many of the local creeks and the town’s lagoon used to have much larger wild salmon populations.

http://sewardcitynews.com/2013/02/seward-nosb-team-suggests-new-approach-to-managing-silvers/
“Options do exist that can help the natural coho salmon population,” their research states. “The city can start to invest time and money into estuarine management, including improving riparian zones, cleaning streambeds, controlling flood zones, and creating thoughtful zoning laws.”

Culverts can harm and potentially kill salmon in times of floods, droughts, and where strong currents occur. The culverts in important salmon migration areas also would have to be replaced, or placed in a way that would optimize, rather than hinder fish migration.

“There have been a few examples of this type of stewardship locally in the last two years, including Resurrection Bay Conservation Alliance’s work restoring Scheffler Creek habitat, and CIAA’s work on culvert(s) at Exit Glacier, but this effort must expand beyond its little scope,” the students concluded.

More careful zoning regulations also would be advisable for new industrial or construction sites that could add to bay pollution through runoff, they said.

The team’s solution also includes a “phased approach” to reducing the amount of stocked fish while promoting and providing healthier spawning grounds for wild coho. With this plan, the natural wild coho salmon population will be restored, the Resurrection Bay estuary will be restored to its peak, and the fishery will be restored to its naturally healthy state, they said.

The Seward NOSB team did not research, nor did they find evidence to support the idea that the annual flooding cycle whereby glacial silt and sediments, and also human flood-control dredging activities scour certain creeks and river beds where salmon spawn, also may be affecting salmon survival, but they told the judges it seems likely. They also were surprised by the lack of research overall on their subject matter.

They barely mentioned the potential detrimental effects of pollution and runoff via the coal transfer facility, barges, ship repair yards, cruise ships, and treated Spring Creek sewage, all of which feed into Resurrection Bay.* This reporter hopes however that their findings will nevertheless give Seward pause to consider the effects of our salmon management practices and future actions on the health of bay.

Some 24 teams from across Alaska participated in NOSB last weekend at Seward High School. Through their interaction with university professors and marine science professionals, the event provided team members networking opportunities for those interested in continuing with higher education, and possible careers in the field. In turn, the student’s independent research projects provided fresh, idealistic ideas about resource management in their region, unclouded by financial or political considerations.

(Correction: I had wrongly said there was “untreated Spring Creek sewage” feeding into Resurrection Bay. But, according to Assistant City Manager Ron Long, the sewage from Spring Creek, and the area, goes through primary and secondary treatment, the same as at Lowell Point, before being discharged onto the Bay. “The system is better than Anchorage’s primary treatment system discharging a much larger volume into Cook Inlet under a waiver issued by the state,” Long states.)

1 Comment

Matt Gray  
February 20, 2013 10:07 am

Way to go, Don’t Say No to Coho team! A very informative and well written article!

It is clear that these high school students went deep into this complex subject and raised questions that most of our fisheries management professionals seem to ignore. How do all these hatchery fish affect the native runs? Could the vast numbers of hatchery Coho and Sockeye fish be part of the cause of the Chinook salmon demise? Unfortunately there are no easy or clear answers.

All the Seward “old timers” I’ve talked to have said that we used to have lots more salmon in our local rivers. So, all our road building and filling in of wetlands have clearly had an impact. Perhaps Seward should catch up with the rest of the Kenai Peninsula and get the 50-foot set back from anadromous waterways rule put in place here, as it has for all other salmon bearing streams on the peninsula? This would not only help our salmon but would reduce our flooding problems as well.

Again, way to go Don’t Say No to Coho team!