

# FISH RAP



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Highlighting releases, returns, policy and legislation affecting the Southeast Alaska salmon fisheries

Vol. 37 No.2  
December 2019

*Steve Reifentstahl  
will leave NSRAA in  
March in pursuit of  
adventure.*



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## Steve Reifentstahl to Retire

On March 15, Steve Reifentstahl, NSRAA General Manager, will retire after 40 years working with NSRAA. Scott Wagner, NSRAA Operations Manager, will take over at the organization's helm.

"Steve is, without question, one of the most professional fish culturists and one of the most dedicated aquaculturists that I know – far and away," says Eric Prestegard, Executive Director at Douglas Island Pink and Chum (DIPAC). "He will be sorely missed."

"I am honored to have worked with Steve," says Jim Moore, a long-time NSRAA Board Member who was also among the group that founded the organization. "To me he epitomizes effective leadership. Not only has he actively led and directed NSRAA in the truest sense, but has represented NSRAA and Alaska's unique hatchery program in the broader arena of politics and policy."

Athletic and trim, with piercing blue eyes and a head of wavy white hair, at 69, Steve looks and acts far younger than his age.

Originally from North Salem, New York, Steve came to Alaska in his early 20s in search of adventure. He was an avid rock and mountain climber and "Alaska was the penultimate of that kind of adventure," Steve says. Jobs were merely a way pay for those adventures.

Some of the words his colleagues use to describe Steve include honest, straightforward, intelligent, passionate, energetic, driven and dedicated. Steve describes himself as "weirdly analytical", focused, energetic, intense. His friends and family tease him for being borderline obsessive in his planning. Steve admits he likes to make charts and analyze data. He was methodical in his plan to move to Alaska and his decision to settle in Sitka. As beautiful as it was accessible to climbing and adventure, Sitka was the perfect "base camp" for Steve's adventures.

Considering his affinity for planning though, it's surprising to hear Steve say he never planned for a career in fisheries, nor his eventual rise through the ranks at NSRAA. With a bachelors degree in wildlife biology and two years of graduate school, Steve began working with NSRAA in the late 1970s, first as a Forest Service employee and then directly with NSRAA.

"Everything I learned about salmon, I learned here on the job and reading and working for Dr. Richard Crone (NSRAA Project Leader for

coho rearing)," Steve says. "He was my mentor."

The rest, as they say, is history. Steve sought adventure and found it, even on the job. "For the first 10 years, I would often say 'I can't believe they're paying me to do this! I would do this for free,'" he says. In his first two years, Steve was part of the team charged with exploring 60 remote lakes. They navigated through wilderness and planned and built trails, manmade dams, remote camps and treehouses. "It was very creative, arduous, challenging and physical work. I just loved it."

When not at work, Steve travelled all over Alaska in his quest for high-risk adventure. Over the years, those athletic accomplishments (he often led the pack, regardless of the competition) have earned him sponsorships from companies, including Patagonia and Montrail, and recognition as an adventure racer. He was selected as one of the first Patagonia ambassadors.

These days, people hear the term 'adventure racing' and often think of the Eco Challenge, where teams of two to five people compete as they navigate a course together using various disciplines, including climbing, rafting, biking. Though Steve occasionally partnered with his brother, Rocky, he usually races solo. He's raced 100-200 miles across Alaskan mountain ranges and wilderness with no checkpoints, no aid stations. He's raced on the Iditarod trail. He's raced 150 miles solo in an ocean kayak. He and Rocky set a record when they rode 365 miles from Fairbanks to Anchorage in 19 hours without once stopping to get off their bikes.

"I'm an intense person," Steve says, laughing. "I've been lucky that I don't need a lot of sleep and I just can't really slow down. That kind of intensity and drive is a big part of success in anything."

But while Steve was surely strategizing his next athletic endeavor, he didn't plan his next career move. "It always surprised me that I would be asked to do something like a promotion," he says. "I wasn't looking to climb a ladder ... it just happened along the way."

In 2009, after a year at Silver Bay Seafoods, Steve returned to NSRAA as General Manager with a vision to grow the organization's production by 40 percent. In just short of a decade under Steve's leadership, NSRAA has expanded its programs and salmon production by 80 percent, with the addition of Southeast Cove, Crawfish Inlet, Thomas Bay

Cont. on back page

# Hatchery Reports

## Medvejie Update

NSRAA constantly works to increase production of salmon for the commercial fleets – but is it possible to increase the numbers without collecting more eggs and releasing more fish? The staff at Medvejie hopes so.

The Alaska Department of Fish & Game Commissioner has increased scrutiny on new hatchery programs and increased production while ADF&G collects and evaluates data on the potential genetic impact of stray hatchery fish on wild stocks. Meanwhile, hatchery managers must get creative.

“If we can’t release additional fish, one way to attempt to increase returns is to maximize marine survival,” explains Adam Olson, Medvejie Hatchery Manager.

## General Manager’s Notes

NSRAA had another good year, meaning we provided good value to commercial fisheries (\$15.8 million), have a strong financial position, released record numbers of high quality salmon fry/smolt, and – most importantly— we have a dedicated professional staff throughout the organization. However, not all is well on the salmon front in Southeast Alaska. For pink, chinook and coho salmon, we appear to be in a transition from the high survivals of five years ago to poor marine survivals, perhaps approaching the survival decline of the 1970s. This is particularly true for chinook and pink salmon, while mixed for coho and chum. We know this based on the decline in harvest, but what complicates our understanding are the unknowns. The ocean has always been a black box, but now we heap on acidification and significantly warmer waters of the North Pacific to the equation. This year, as in 2018, NSRAA’s enhanced salmon harvest balanced out a portion of the wildstock salmon decline.

This transition to a less productive ocean may be short-lived, persist for a Chinook salmon life cycle, or be the new re-equilibrium of the North Pacific brought about by a lower pH from acidification and warming water temperatures. It will take good science and a diligent staff to understand these complex issues in order to ascertain whether there are potential mitigation measures. There have always been cyclical fluctuations in salmon marine survival, but fishermen and women are a tough breed that have demonstrated they can weather any storm. We at NSRAA will do our best to lend a hand.

Another transition is underway, although not one precipitated by changing oceans but rather by the natural phenomenon of aging. I am not yet dying on the spawning grounds, but my time to retire has come. Fortunately, there has been a four-year succession plan. Scott Wagner, a 24-year NSRAA employee and current Operations Manager will take the reins at the March 2020 board meeting.

It has been my great privilege and honor to have worked for fishermen. My partnership with a dedicated board of directors to develop enhancement programs of economic value and consequence, while maintaining the highest standards for fiduciary and corporate responsibility, has been rewarding beyond expectation. I would like to thank board members present and past, fishermen, and the remarkable NSRAA staff for a truly outstanding and meaningful work life.

Merry Christmas, Happy Holidays, and have a prosperous & Happy New Year.



*Steve Reifentstahl*

That effort to maximize marine survival is a constant theme at NSRAA, but with few opportunities for increased production, it becomes even more important as the organization works to get more fish to the fleets.

NSRAA has experimented with various rearing and release strategies in its quest to maximize survival rates. One of the more successful rearing strategies to date has been its 4.0 chum program. Traditionally, chum are raised to and released at 2 grams. Under the 4.0 program, the fish are raised to twice that size and released at approximately 4 grams. The cost of raising the fish to this weight is substantial and increase in survival has ranged from zero to as much as 16:1.

“There is significant variation in survival from year to year and from site to site,” Adam says. “But one good year with a significant increase in marine survival will more than pay for the increased cost of the program.”

The 4.0 program requires more net pens so that the fish can be reared with enough room to grow to the larger size. At Medvejie, that will require an additional 12 net pens at Deep Inlet and another four at Bear Cove, plus new netting, for a total cost of approximately \$400,000. It’s a costly capital investment, but one that could substantially increase returns.

“We have enough data from the past five years or so that shows a definite increase in survival,” he says. “If we are looking at the cost benefit as a whole – across all NSRAA’s sites – to me, it looks like a safe investment of the fishermen’s money, where they should get more back in their pockets.”

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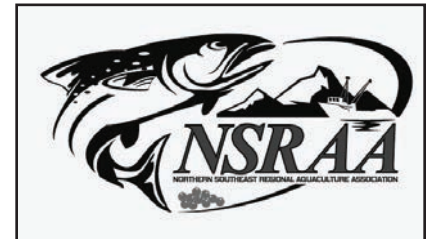
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*Medvejie Lake levels were over 10 feet below spill levels during this summer's prolonged dry spell. Medvejie Hatchery was on pumps for much of the summer.*

## Salmon Lake Coho Monitoring



*The Salmon Lake crew, led by Ben Adams, completely rebuilt the Salmon Lake weir this summer. Alyssa and Annie work on putting the weir together.*



*Alyssa Tomczyk and Annie Causey with coho caught during beach seine operations. Fish are marked at the weir and during beach seining in the lake to estimate adult coho numbers.*



*Hidden Falls spawning shed renovation nears completion.*

## Hidden Falls Explores New Rearing Strategies

Salmon returns to NSRAA's Hidden Falls Hatchery have dropped dramatically in the past ten years or so, but the crew there hasn't given up hope. Each year, the staff tries new strategies to boost salmon survival and returns.

When survivals first dropped precipitously, staff theorized that whales and other predators had become habituated to the annual releases and large numbers of fry were being lost to predation before they even made it out to open sea. In response, NSRAA began towing groups of fry away from shore and by tender in an effort to avoid near shore predation. But towing adds another level of stress and potential mortality for the fish. There wasn't a way to measure whether one method of release contributed to higher ocean survival than another.

A few years ago, the staff at Hidden Falls began marking and tagging its chum fry to differentiate between the groups that were towed from Kasnyku Bay and those that weren't. Now, the staff can begin to collect data to measure whether one release strategy is more effective than another.

The staff has not limited its efforts to release strategies, but has also experimented with new rearing strategies and continues to explore other options, such as switching over to a new – and possibly more resilient – Chinook stock from the Keta River.

Next year will be the first winter for a new rearing strategy for Hidden Falls' coho, which have suffered particularly poor returns in recent years. The hatchery will move a larger portion of its coho (about 1 million fish) into saltwater for the winter as the saltwater group has outperformed the freshwater group in recent years. This year, the staff will move two groups of coho to saltwater for the winter. Typically, the fry are moved to saltwater pens in October at 12 grams; the early group will be moved to saltwater in June at approximately 5 grams.

"Port Armstrong has had some success with these early entry trials these last few years," explains Jon Pearce, Hatchery Manager. "We have to continually evolve our programs to combat new issues and problems as they come up so, at the end of the day, we increase our marine survival and increase the fishing opportunities for Alaskan fishermen."



## 2019 Forecast vs. Return

NSRAA's forecasts for 2019 may not have come to fruition, but the value of the commercial contribution still ranked the season within the organization's top five.

"Sometimes you have lofty expectations that don't come true, but we still had a very good return," says Chip Blair, NSRAA Data Analyst.

To truly understand this season's return – and the great uncertainty that came with it – one must first look back at 2018. The unprecedented return of 3-year-old chum returning to Crawfish Inlet broke records. Chip and NSRAA General Manager, Steve Reifentstahl, knew this historic return could also skew the data, so they labored over the numbers in an effort to create a realistic forecast for 2019. Not only did they see a larger portion of 3-year-olds in 2018 than ever before, but there were also a substantially higher ratio of males to females than previously recorded. What did this historic return signify – if anything – for 2019?

"In 2018, we had 70 percent 3-year-olds in 2018 at Crawfish Inlet," Steve explains. "We also had an inordinate percentage of 3-year-olds at Southeast Cove, Deep Inlet and Hidden Falls, so we recognized right away that it was a substantially higher proportion than we'd ever seen before and were cautious using our regression models as we forecasted the return for 2019. We downgraded everything."

"It was a tough year to forecast," says Chip. "For both chum and Chinook, there seems to be a shift where a higher number of younger fish are coming back. For Medvejie Chinook, historically, we have seen roughly two 3-ocean fish for every one 2-ocean fish for the same brood year. So, if you have 10,000 2-ocean fish, you'd expect 20,000 3-ocean fish for that same brood year. However, for brood year 2014 (2019 3-ocean Chinook) we had 21,300 2-ocean fish in 2018, but only 13,100 3-ocean in 2019."

"Chum for brood year 2015 show a similar deviation from normal ratios," he continues. "Despite tweaking our forecast model, we still overpredicted the number of 4-year-olds for this year. Both of those groups entered the ocean in 2016, so something probably happened in the ocean that caused them to mature faster and come back at an earlier age. This seems to be part of a longer-term trend for Chinook, but it may be a one-time event for chum."

In the end, the forecast estimated 9 million chum returning to NSRAA's various projects.

"As the season unfolded, it became clear no one was going to see those kind of returns," Steve says. "Once all the fish were in, we ended up with about 4.5 million return – about half the forecast."

Once again, Crawfish Inlet was the star performer, coming in at 60 percent of forecast. Still, the ratio between 3-year-olds and 4-year-olds defies historical data.

"The question we're asking ourselves is what happened? I remember thinking 'When we get to the end of 2019, we may be saying there is an age shift to younger fish' and, indeed, that is what happened," says Steve. "NSRAA was fortunate. Overall, our chum performed better than

most places. SSRAA had a near disaster; they had so few 4-year-olds returning, they barely made broodstock. DIPAC fared better but, even so, their forecast came in at less than half the forecast."

Little research has been done to explore the lives of salmon as they winter in the northern Pacific. No one knows exactly where the salmon from all the various countries – Alaska, Canada, Russia, Japan – go, what they eat, how or if they interact, how that time in the ocean affects their overall marine survival.

Last winter, in early 2019, Richard Beamish, a well-known salmon scientist, set out to answer some of those questions. He and his crew sampled salmon using an internationally agreed-upon grid that allows for future studies in the same area. Preliminary results showed that chum salmon were the most abundant salmon, both in number and biomass. But the majority of the chum sampled for the study were scrawny and emaciated, whereas the sockeye sampled appeared healthy.

But while the numbers of chum returning to NSRAA did not meet forecasts, nor did they seem unhealthy or emaciated.

"The results of that study don't seem to explain what happened in Southeast Alaska," Steve says, whereas the majority of chum that returned to Prince William Sound weighed in at less than 5-pounds on average this season. "Another confounding piece of this is that, at least for Crawfish in 2018, not only were 70 percent 3-year-olds, but about 70 percent of those 3-year-olds were male. We thought there needed to be a big component of females for 2019 to balance out the numbers to 50/50 male and female. But we didn't see that. It's a mystery what happened and why."

Regardless what happened, this season's return made it clear to Steve and Chip that the historic 2018 numbers must be taken out of the equation when calculating future year forecasts as it would continue to skew forecasts too high.

The returns for NSRAA's other programs and sites varied from approximately 25 to 50 percent of forecasts, but both Chip and Steve still seemed relatively pleased with the returns.

"We still ended up with a healthy number of fish and strong contributions to the commercial fleet," says Chip. "If you compare to the previous year, returns were about 85 percent of 2018. The value was down quite a bit more than that, but the value is lower more because of fish prices than number of fish that returned."

"It was a very good year based on our 40-year history," Steve agrees. "Like 2018, it was very much driven by fall run chum in Crawfish Inlet and Deep Inlet. Those chum come in late season and it saved a lot of seasons both troll and seine because there was so much value pulled out of both those locations."

"The previous year was in the neighborhood of \$28 million and this year was \$15.8 million," Chip says. "We've had three other years at about \$18 million, so this year was kind of tied for the 5th highest year ever – just a hair higher than 2010 – for the commercial value of all species."

### NSRAA Contribution to Southeast Alaska Commercial Fisheries Number of Fish : 2018 - 2019

	Gillnet		Seine		Troll		All Gear	
	2018	2019	2018	2019	2018	2019	2018	2019
<b>Chinook</b>	3,364	4,055	5,598	3,109	3,679	3,426	12,641	10,590
<b>Chum</b>	323,999	430,477	3,169,569	2,829,625	371,136	224,697	3,864,704	3,484,798
<b>Coho</b>	10,726	10,149	30,365	13,438	70,390	47,539	111,481	71,126
<b>All</b>	338,000	445,000	3,206,000	2,846,000	445,000	276,000	3,989,000	3,567,000

## Fall Chum Boost 2020 Forecast

2020 Chum Forecast			
Early Runs		Late Runs	
Hidden Falls	364,000	Deep Inlet (Medvejie stock)	984,000
Southeast Cove	306,000	Crawfish Inlet	1,579,000
Gunnuk Creek	3,000		
Thomas Bay	222,000		
Deep Inlet (Hidden Falls stock)	494,000		
<b>Early Run Total</b>	<b>1,389,000</b>	<b>Late Run Total</b>	<b>2,563,000</b>
<b>Grand Total</b>		<b>3,952,000</b>	

Nearly 4 million chum are expected to return to NSRAA projects next year.

Thomas Bay will see its first return of 4-year-old fish. Gunnuk Creek will have its first 3-year-old return.

Hidden Falls will have 4-year-olds return from the fry transported by tender and released away from the hatchery in an effort to reduce predation.

Next season's return might not break records, but it could still rank in NSRAA's top 10 seasons for commercial value.

"Our forecast for chum is 3.95 million – that would be a similar return to what happened this year," says NSRAA General Manager, Steve Riefenstahl. That forecast represents 85 percent of the organization's commercial chum catch of 4.6 million this season. "That's a very decent forecast. Those are good numbers that could, if the price goes up a bit, equal the value of our catch in 2019."

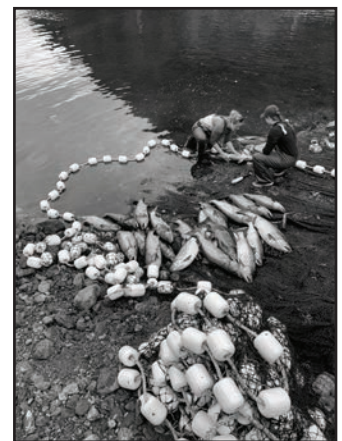
"That's a fairly good chum return," agrees Chip Blair, NSRAA's Data Analyst.

While both men are consistently hopeful with each season, this one includes two factors that might work in the organization's favor: it marks the first return of 4-year-old chum to its newest remote release site, Thomas Bay, as well as the first return of 4-year-old chum raised at Hidden Falls

but released remotely, by tender, in an effort to avoid near shore predation and boost return numbers. "We're anxious to see if using the tender to release the fish away from shore will improve the return numbers there," Chip explains.

The forecast for all species combined comes in just below 4.2 million salmon, including an estimated 207,000 coho and 15,600 Chinook. NSRAA's relatively strong forecast for 2020 is not reflected throughout Southeast, Steve explains. Chum represent the bulk of NSRAA's commercial catch and forecasted returns and, in recent years, NSRAA's fall runs are outperforming the summer runs.

"This forecast of 3.95 million is very much driven by the fall run, by Deep Inlet and Crawfish," he says. "Those programs, alone, are 3 million of the forecast. It appears the summer run fish are doing poorly now, whereas the fall runs are doing much better."



Top row, left to right: 1) Medvejie staff breaking ice to get to the Crawfish Inlet site for spring setup. 2) Aeration was added to Sawill round ponds. 3) Taylor Colvin test drives the skiff Medvejie's maintenance staff built for Green Lake. 4) Chinook beach seine efforts in Bear Cove.



Bottom row, left to right: 1) Kyleigh McArthur samples Chinook at Medvejie. 2) Brett Jenkins waiting for the next batch of chum during a Medvejie spawning session. 3) Kelly McElligott at the Sitka High School Job Fair. 4) Chum heads having otoliths removed. NSRAA collected over 7,200 otolith samples this season.



## NSRAA Board Member Henrich Kadake: Native Organization

On the Monday morning after Thanksgiving weekend, Henrich Kadake was on the phone trying to arrange a ferry so the residents of Kake could have a day of shopping in Juneau before Christmas without having to pay \$400 in airfare per person.

“I’m not the mayor anymore, but I still try to do things for my people,” says 75-year-old Henrich after he hangs up, the updated ferry schedule confirmed for the Juneau shopping day. “I love to help my people – anything I can do to help save them money.”

Henrich has lived in Kake, a small Native Tlingit fishing village along Keku Strait and Frederick Sound on the northeast side of Kupreanof Island and on the edge of the Tebenkof Bay Wilderness, all his life. The village has grown since Henrich was a child. Back then, there was one road, about a mile long, in a village of about 300. These days, the population hovers between 600 and 700 residents. Most of the residents live a subsistence lifestyle.

“To me it’s a nice, peaceful, little village,” Henrich says. “We enjoy the abundance of seafood and deer and moose. We have everything we need in this community to survive.”

At one time, there were about 30 fishing boats, including Henrich’s, docked here. Henrich didn’t intend to become a commercial fisherman. He went to school for carpentry. But when he returned to his village and his father became critically ill, Henrich took over his father’s business.

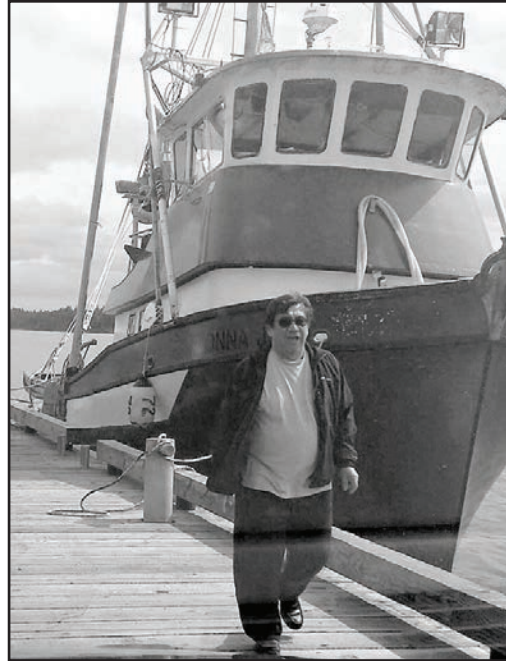
“He could not run the boat anymore, so he told me I had to do it for him,” Henrich says. “That’s how I ended up being a commercial fisherman. If I had to do it all over again, I don’t think I would change anything, because I just love commercial fishing. I didn’t miss a season for over 60 years. It was something I really enjoyed doing.”

In addition to being a fisherman, Henrich has a long resume of service and leadership positions. He served as the mayor of Kake for 15 years. He’s represented his village on the Southeast Conference Board. He was Tribal President for the Organized Village of Kake (OVK) and serves as Chairman of the Board for the Kake Tribal Corporation. These are just a few of his contributions.

Family is important to Henrich. He and his wife, Renee, have raised 11 children, some of whom have stayed in the village and some who have left. The couple has 39 grandchildren and nine great-grandchildren. The people of Kake are like extended family to Henrich.

“Being a mayor was a really good experience for me,” he says. “You almost have to dedicate all your extra time to make sure everything is going right in the village. It’s really a tough thing to do because you have to work for everybody – not just Native people. Being the mayor was one of the highlights of my life.”

Henrich had just retired from fishing, as mayor, and from most of his various other obligations when Steve Reifenhuth, NSRAA General

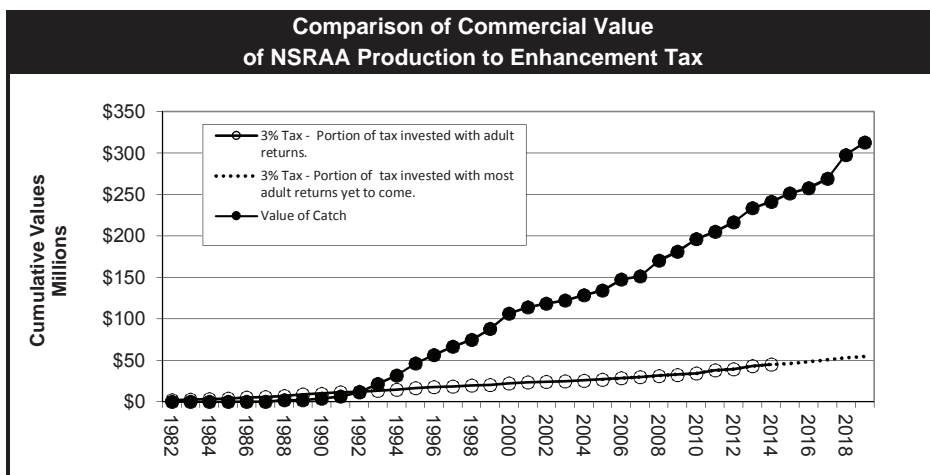


Manager, called to ask if he would represent the Native entities on the board. Henrich hesitated briefly before agreeing. He had envisioned retiring from “everything” at once, but Henrich likes to help his people.

As an NSRAA board member, Henrich been able to represent Kake (and represent NSRAA to Kake) as NSRAA works to renovate and reopen the Gunnuk Creek Hatchery. The reopening of Gunnuk Creek Hatchery promises increased chum and Chinook returns for commercial fleets and sport fishermen, but for the village of Kake, it means even more. Only a few commercial boats are docked here these days. The salmon runs have declined substantially over the years as the previous owner of Gunnuk Creek struggled with fish survival. Once logging operations ended and the timber mills shut down, the hatchery was one of the few employers in town until the hatchery also closed operations.

If NSRAA is successful at Gunnuk Creek, that means more fish for the people of Kake (enough, Henrich hopes, to even revive the village cold storage), more jobs at the hatchery so the young people of Kake don’t have to leave the village to find work, and maybe even enough fish for more villagers to justify the cost of a commercial fishing permit and boat.

“My dad and my grandfather always told me: the more you do for the people, the better we’re going to be,” Henrich says. “I’ve always had that in the back of my mind. I enjoy it when I see my people are being taken care of because that was always my main goal in life. I enjoy what I do when I see my people having a better life.”



*This chart compares enhancement tax received by NSRAA and the commercial value of NSRAA production. NSRAA has received \$55 million in tax; ex-vessel value of commercial catch is \$313 million.*



*The incubation room at Gunnuk Creek. The hatchery received its first eggs under NSRAA management in October.*



## Deer Lake Looks at Rearing Options

As marine survivals have declined along the east side of Baranof Island on Chatham Strait, the managers of all hatchery sites – NSRAA and Port Armstrong Hatchery – are re-examining their rearing procedures in search of methods that might lead to increased salmon survivals.

Hidden Falls, at the northern end of the island, has suffered the worst marine survivals. The coho raised at Deer Lake, located on the southern end of Baranof, about 18 flight miles north of Port Alexander, have fared better than those at Hidden Falls, but not as well as the salmon returning to Port Armstrong.

“It appears now that we may have a situation where nontraditional rearing gives coho a modest edge in the fight for better survivals in the open ocean,” says Woody Cyr, Project Manager at Deer Lake.

The options at Deer Lake are limited since there is no saltwater rearing at this remote site. Over the years, the coho reared at Deer Lake have been split into two roughly equal groups: one group is kept within net pens and the other group is released into the lake. Though the fish that are not in net pens have a higher chance of mortality before emigration due to predators within the lake, they have shown a slightly better survival rate once in the ocean.

No decisions have been made yet to change the procedures at Deer Lake, but one option would be to increase the portion of coho that are reared without net pens or to remove the net pen group entirely – “this would cut production in half and save about \$100,000 annually,” Woody explains.

Possibly the biggest obstacle in moving to a higher ratio of fish without net pens is their emigration, explains Scott Wagner, NSRAA Operations Manager. In the past, the number of fish emigrating naturally has overwhelmed and blocked the weir.

“Can we handle another 100,000 fish a day? That’s probably the biggest question to evaluate as we provide the board with options for next winter,” he says.



*Construction continues at Gunnuk Creek Hatchery.*

## Gunnuk Creek Completes First On-Site Incubation

The board and staff at NSRAA knew that renovating the failed Gunnuk Creek Hatchery would be a long, arduous and expensive process, but the work is beginning to pay off.

This fall, two years after purchasing the facility, the hatchery was able to receive its first generation of chum eggs for incubation on location. It was a year later than initially projected, as the installation of the hatchery’s new water system took longer than anticipated.

The hatchery, located near the village of Kake on the northwest side of Kupreanof Island, is dependent on water from a watershed within a heavily logged area of the Tongass Forest. The logging has led to erosion, low water flows and drastic temperature fluctuations within the water that feeds the hatchery and is likely the primary reason the previous owners struggled with fish survival there.

NSRAA has installed a complex water treatment system that includes settling tanks to remove solids from erosion, UV treatment to kill any bacteria, fungi or protozoa, and a heated or chilled recirculation system to ensure consistent water temperature.

“The treatment and recirculation system is necessary to the viability of Gunnuk Creek as a hatchery, due to the poor quality of our source water,” explains Ryan Schuman, Hatchery Manager.

The heating and cooling system had not yet been completed when the eggs were transferred for incubation this fall, but there were no problems with the incubation process despite it. Ryan said he expected the heating and cooling system would be completed before winter temperatures dropped enough to affect water temperatures within the hatchery.

“Our water quality has been very good and the fish have hatched and are growing well,” Ryan reports. “The fact that the fry are doing so well compared to the past is an indicator that we’ve gone about this the right way. I mean, anything can happen, but it feels like we’ve done it right so far. It’s a justification for all the time and money NSRAA has spent renovating the hatchery.”

## New Employees

NSRAA welcomed Mike Dalton to its staff of full-time, year-round employees this fall. Mike has worked for NSRAA at the Gunnuk Creek Hatchery as a seasonal fish culturist for the past two years. Born and raised in the village of Kake, Mike worked as a fish technician at the Gunnuk Creek Hatchery under its previous owners. He and Ryan Schuman, Hatchery Manager, comprise the current full-time crew at Gunnuk Creek.

“Mike has a lot of mechanical and boat skills, a good hatchery knowledge and is very helpful when I have to work or speak with various governing bodies in Kake,” Ryan says. “He shows a lot of promise and I’m looking forward to working with him more and helping him come into his own as a fish culturist.”



*Thomas Bay added a feed float this summer. Construction was completed in a few days by NSRAA staff with the assistance of the American Patriot.*



## Steve to Retire

Cont. from front page

and Gunnuk Creek Hatchery. It is arguably his greatest accomplishment. “I appreciate how he mobilizes resources and staff to turn vision into the mission and accomplish it,” says Eric Jordan, one of the organization’s founding members and a long time NSRAA Board Member.

“Steve seems to thrive on challenges,” says Deborah Lyons, NSRAA Board Member. “Under his leadership, the entire NSRAA staff was completely engaged with an urgent response (to run failures at Hidden Falls) and carried out his strategy of immediate diversification of the chum programs. Fishermen will reap the rewards of that response for decades.”

“Steve worked so hard to get the returns up for NSRAA and I’m just ever so happy for him,” Eric Prestegard says.

When asked what he views as his most rewarding moments at NSRAA, Steve refers to drone footage on YouTube that documented the 2018 record-breaking catch at Crawfish Inlet. “I couldn’t watch that video the first ten times without tearing up, because it was representative of all we had poured into these programs to create this value to fishermen. It was representative of that and it was a very emotional thing for me.”

“I just feel very fortunate that I fell into this job – not just where I’m sitting now, but working for fishermen,” Steve says. “I really, truly love being the General Manager. It gave me a chance to bring all that experience and knowledge to this organization that really brought me up – that raised me from an irreverent young person to an irreverent old person – so I could help guide it, with the board, to make it a better, more resilient and effective organization.”

“NSRAA is woven through my fabric, there’s no question. It’s been a huge component of my life. It’s been hugely rewarding to work for a board of directors that is engaged and appreciative of what we do, and is visionary in how they approach staff and employees and growing the company.”

After 40 years, Steve is as much part of NSRAA’s fabric as it is a part of him. Though Steve has planned for his retirement carefully – he gave the board his notice four years ago, so NSRAA wouldn’t miss a step in his absence – it is bittersweet to say goodbye. It will be no easier for Steve to walk away than it will be for others to see him go.

“What I think every commercial fisherman who participates in the forums that rule our lives will miss is Steve Reifentstahl, the “White-Maned-Lion,” advocating with reason and integrity on our issues,” says Deborah.

“That our board of directors often faces divisive issues, yet somehow always seems to maintain our cohesiveness, is due in no small part to Steve’s vision and to his wisdom,” Jim says. “He commands everyone’s respect. One reason for that is that his heart is in his work. I have seen him tear up when reflecting on the phenomenal success of one of our aquaculture projects. It’s an honor to work with someone like that.”

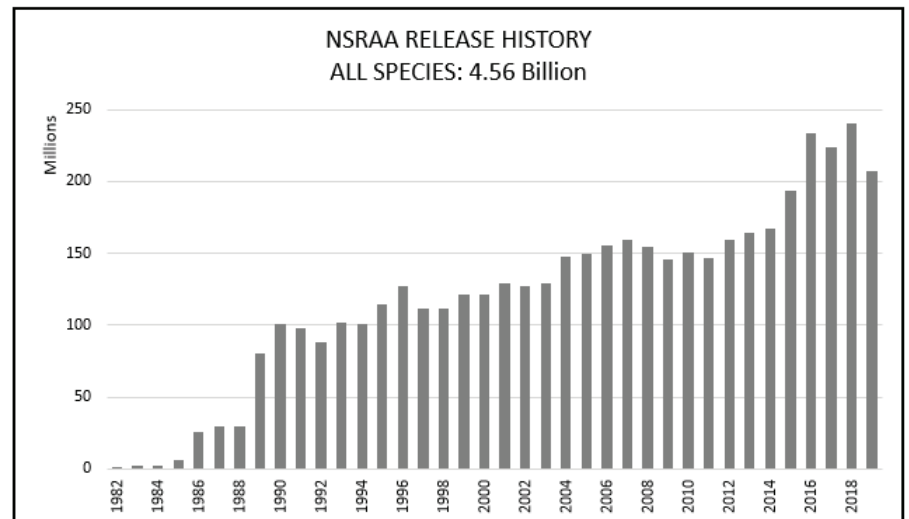
“I feel convinced that we’re still going to see him participate one way or another for years to come,” says Eric Prestegard. “He’s not walking away from it 100 percent. I can’t imagine him not; he’s got too much energy.”

Needless to say, Steve’s retirement does not mark the end of his adventures. In fact, adventure – climbing, in particular – is one of the reasons he has chosen to retire now, instead of later.

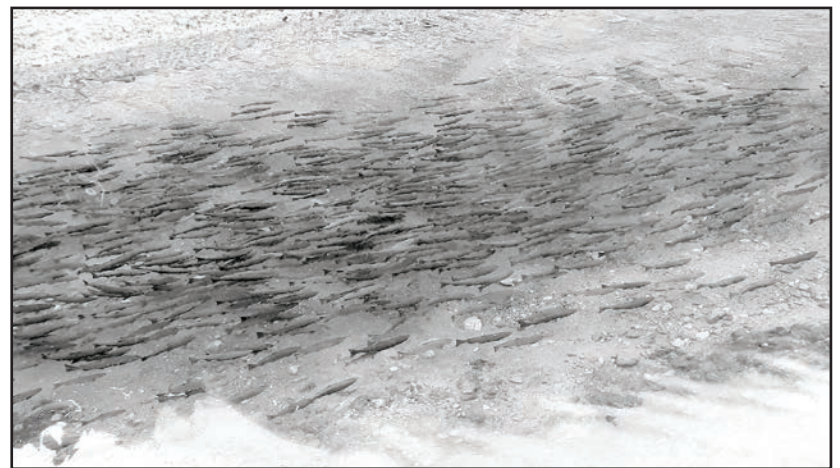
“From all I can tell, I don’t think I’ve slipped at all – my mental faculties are still acute,” he jokes. “I still do all the things I’ve always done on the adventure competitive side of my life. I think I still have 10 years left in my body where I can do those things. That’s a good time to leave, when you’ve accomplished things and you still have a vision for what you want in your future.”

March 15th will be Steve’s last day with NSRAA. Scott, a longtime NSRAA employee, will take over for the spring board meeting. Steve and board members are confident the transition will be seamless.

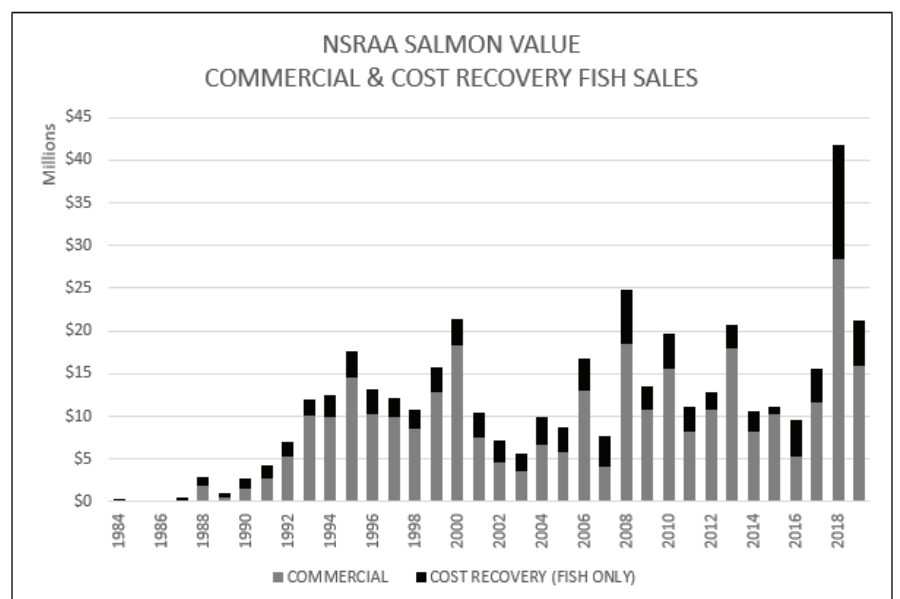
“Steve matured into the role (of General Manager) by always giving his best in response to every challenge, learning from mistakes, and by empowering the staff,” says Deborah. “I expect Scott Wagner to do the same. NSRAA is not a culture that celebrates individuals so much as a culture that empowers individuals to succeed in the task of producing fish and strengthening the fishing community, wherever possible.”



NSRAA Salmon Releases.



Chinook broodstock cruise in the channel below the fish ladder at Medveje Hatchery.



Despite lower chum prices, the 2019 harvest had the fourth highest annual value for NSRAA production. Commercial value was \$15.8 million, cost recovery \$5.5 million, and total value was over \$21.3 million.